CITY OF CARDIFF.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1909.

EDWARD WALFORD, M.D., D.P.H.,

Medical Officer of Health, City and Port Sanitary District of Cardiff;
Medical Officer, Cardiff Education Authority.

[illegible] COUNCIL
[illegible]
27455

Printed by Order of the Urban Sanitary Authority.

CARDIFF:
[illegible] & Sons,
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1910.

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City of Cardiff.

HEALTH AND PORT SANITARY COMMITTEE.

Lord Mayor:

ALDERMAN JOHN CHAPPELL, J.P.

Chairman:

COUNCILLOR JAMES ROBINSON, J.P.

ALDERMAN P. W. CAREY, J.P.
,, J. H. JENKINS, J.P.
,, W. H. RENWICK, J.P.
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,, E. NICHOLL.
,, C. WALL.
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,, W. GREY.

CITY OF CARDIFF.

Medical Officer of Health's Department

(MAY, 1910).

Medical Officer of Health :
EDWARD WALFORD, M.D., D.P.H.

Assistant Medical Officer of Health :
E. FAIRFIELD THOMAS, M.D., D.P.H.

Chief Inspector of Nuisances :
SAMUEL EVANS*

Special Inspector :
F. GLOVER.*

District Inspectors :
T. W. WARREN.*
J. W. HOLDEN.*
J. STRANGE.*
F. DAVEY.
W. JAMES.*
E. UPHAM.*†

Inspectors of Lodging Houses :
W. FISHER.*
A. F. MALE.*

Inspectors of Workshops and under Shop Hours Acts :
J. ASHMAN*.
W. J. EVERSETT.*||

Chief Inspector of Meat :
P. J. MULLANE, M.R.C.V.S.

Assistant Inspectors of Meat :
T. R. EVANS.*||
H. TATTERSALL.*||

Assistant Inspector of Meat and Inspector of Other Foods and of Cowsheds :
G. M. McGREGOR.*||

Infectious Disease Inspector :
GEO. THOMAS.*

Disinfectors :
W. THOMAS.
W. WEBSTER.

Health Visitors :
MISS F. WADE*.
MRS. L. HUNTLEY.‡

Chief Clerk :
THOS. CHANT.*

Clerks :
W. H. ALDERMAN.
P. F. NOOTE.
ROBT. CHANT.
A. J. GLOVER.
O. W. FUDGE.

* Cert. Royal San. Inst.
† Cert. San. Insp. Exam. Board.
‡ Cert. Health Visitor and School Nurse Royal San. Inst.
|| Cert. Meat Insp. Royal San. Inst.

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CITY OF CARDIFF.

City Hall,
Cardiff,
May, 1910.

TO THE LORD MAYOR, ALDERMEN, AND MEMBERS
OF THE CITY COUNCIL.

My Lord Mayor and Gentlemen,

I have the honour of submitting to you my Report for the year 1909, made in accordance with Article 18 (Section 14) of the Local Government Board's Order of March, 1891, which specifies the information to be contained in the Annual Report of the Medical Officer of Health, as follows :—

" He shall make an annual report to the Sanitary Authority up to the end of December in " each year, comprising a summary of the action taken, or which he has advised the Sanitary Authority " to take, during the year for preventing the spread of disease, and an account of the sanitary state " of his district generally at the end of the year. The report shall also contain an account of the " inquiries which he has made as to conditions injurious to health existing in the district, and of the " proceedings in which he has taken part or advised under any statute, so far as such proceedings " relate to those conditions ; and also an account of the supervision exercised by him, or on his advice, " for sanitary purposes over places and houses that the Sanitary Authority have power to regulate, " with the nature and results of any proceedings which may have been so required and taken in " respect of the same during the year. The report shall also record the action taken by him, or on " his advice, during the year, in regard to offensive trades, to dairies, cowsheds, and milkshops, and " to factories and workshops.

" The report shall also contain tabular statements (on forms to be supplied by us, or to the " like effect) of the sickness and mortality within the district, classified according to diseases, ages, " and localities."

Under Section 132 of the Factory and Workshop Act, 1901, the Medical Officer of Health is also required to report annually on the administration of this Act in workshops and workplaces, and to send a copy of his annual report, or so much of it as deals with this subject, to the Secretary of State. The report shall also include an account of the action taken with respect to factories, workshops, and workplaces, taken under the Public Health Acts, as well as under the Factory and Workshop Act, 1901, and should contain a record of any certificates of suitability which have been granted by the Sanitary Authority during the year with respect to underground bakehouses in use at the passing of this Act.

In the memorandum issued by Dr. Arthur Newsholme, Medical Officer of the Local Government Board, dated October, 1909, it is pointed out that the annual reports of Medical Officers of Health should contain information as to the influences affecting, or threatening to affect, injuriously the public health in the district, and as to the action which has been taken, or which may still be needed, with a view to combat those influences. Further, that the report should record what action has been taken to remedy unhealthy conditions which have been reported upon in previous annual reports, or in special reports presented during the year under review, and that attention should be called afresh, year by year, to such as remain unremedied.

Attention is also directed to the recent memorandum on Medical Inspection of Children in Elementary Schools, issued by the Board of Education, dealing with the new duties thrown upon Local Education Authorities in this respect by Section 13 of the Education (Administrative Provisions) Act, 1907.

It is pointed out that "it is the desire alike of the Local Government Board and of the Board "of Education that the relations of the Local Sanitary Authority and the Local Education Authority "should be intimate and cordial, in order that the administrative procedures of both bodies should "be reciprocally helpful. Special attention is directed to the particular Section of Circular 576 of the "Board of Education entitled 'Organisation' with which the Local Government Board are in full "agreement as illustrating the inter-relations of Sanitary Authority and Local Education Authority, "that deserve fostering and development."

This section deals in detail with the advantages from an administrative and economical point of view of co-ordinating the work to be carried out under Section 13 of the Act of 1907, with the ordinary routine work of the Sanitary Authority, thus bringing with close administrative union two Departments of the State Service concerned with the Public Health.

Attention is called by Dr. Newsholme to the fact that "the Act does not confer powers "in supersession to those heretofore exercised generally in a public health sense by Sanitary Authori-"ties under previous enactments, but that it is supplementary to existing Public Health Law, in that "it requires supervision of the health of the individual child, and it is anticipated that in accordance "with the advice of the Board of Education the work of Medical Inspection of School Children, and "all work connected with the hygiene of school life will be carried out under the supervision of the "Medical Officer of Health, and that where that Officer is also School Medical Officer under the Code "of Regulations for Public Elementary Schools, 1908, it will be convenient that the annual report "which he is required to make in the latter capacity should be issued together with his annual report "on the health of his district."

The following comprise the chief subjects concerning which the Local Government Board desire to obtain information through the annual report of the Medical Officer of Health :—

Physical features and general character of the district.

The chief occupations of the inhabitants, and the influence of any particular occupation on public health.

House accommodation, especially for the working classes : its adequacy and fitness for habitation. Sufficiency of open space about houses, and cleanliness of surroundings. Supervision over erection of new houses. Action under the Housing of the Working Classes Act, taken or needed.

Sewerage and drainage : its sufficiency in all parts of the district. Condition of sewers and house drains. Method or methods of disposal of sewage. Localities where improvements are needed.

Pollution of rivers and streams in the district : the sources and nature of such pollution, and any action taken to check it.

Excrement disposal : system in vogue ; defects if any.

Removal and disposal of house refuse—whether by public scavengers or occupiers: frequency and method.

Water supply of the district or of its several parts: its source (from public service or otherwise), nature (river water, well water, upland water, etc.), sufficiency, wholesomeness and freedom (by special treatment or otherwise) from risks of pollution; liability to plumbo-solvent action.

Milk supply: character of milk supplied within district: administrative control, etc. Condition of Dairies, Cowsheds, &c. Action with respect to Tuberculous milk.

Meat inspection: food supply: action under Sale of Food and Drugs Acts.

Methods of control of Tuberculosis; action of Veterinary Surgeon and Meat Inspectors.

Midwives Act: Notification of Births Act; Work of Health Visitors.

Vital statistics.

Bye-laws relating to places over which the Council have supervision, *e.g.*, lodging houses, slaughterhouses, dairies, cowsheds and milkshops, and offensive trades; steps taken for their enforcement.

Administration of Factory and Workshop Act, 1901.

Schools, especially Public Elementary Schools; sanitary condition of, including water supply; action taken in relation to the health of the scholars and for preventing the spread of infectious disease; arrangements made for Medical Inspection of School Children.

Adoption of Part III of the Public Health Acts Amendment Act, 1907.

Nuisances: proceedings for their abatement—any remaining unabated.

Methods of dealing with infectious diseases: notification; isolation hospital accommodation and its sufficiency; disinfection.

This report will therefore deal to some extent with the above mentioned subjects, so far as they relate to the district under the control of the City Council or Urban Sanitary Authority.

PHYSICAL FEATURES OF DISTRICT.—The City of Cardiff comprises 6,373 acres of land and inland water, exclusive of foreshore and tidal water, and is situated upon impervious strata, consisting for the most part of new red marl; resting upon this formation are the more superficial deposits of river gravel, more or less saturated with water. A gradual rise in the gravel takes place towards the north, so as to attain a level of nearly 40 feet above Ordnance Datum in Queen Street and the Newport Road, and 50 feet at Cathays, where resting on the red marl, it forms a deposit to a depth varying from 8 to 20 feet of good building land, upon which the greater part of the north-east side of the town is constructed. The part of the town situated on the west of the River Taff is, in the northern or Canton District, on an alluvial deposit of clay, sand, and gravel; the southern, or Grangetown ward, being on the estuarine mud—a stiff blue clay of marine origin, which forms also the soil in the neighbourhood of the Docks and South Splott. This low-lying part of the town is now protected from the sea and tidal waters by banks, and has in many parts been raised by the deposit of made soil composed of ashes and house refuse collected by the public scavengers. The southern part of the town therefore consists of alluvial land at a very slight elevation above the ordinary sea level near the mouths of the Rivers Rhymney, Taff, and Ely.

The Rhymney and Ely Rivers, at the points at which they enter the Bristol Channel, form respectively the eastern and western limits of the City; the Taff flowing in a southerly direction forms a natural division of the town into east and west, each having a separate drainage system.

The area of the City is distributed in Registration Sub-districts as follows :—East Cardiff, 481 acres, Central Cardiff, 3,832 acres, and West Cardiff, 2,060 acres. The City is also divided into ten Municipal Wards containing the civil parishes of Canton, Roath, St. John, and St. Mary.

Cardiff is well provided with parks and open spaces, forming admirable recreation grounds and breathing spaces for the inhabitants of the crowded parts of the town. Those places, which belong to the public and are under the control of the Cardiff Corporation, comprise a total area of over 300 acres, as follows :—

	Acreage. Exclusive of Roads.		
	Acres.	R.	P.
Roath Park (part of)	100	0	0
Victoria Park	19	2	36
Canton Park	6	1	36
Loudoun Square	1	1	37
Howard Gardens	1	0	36
Adamsdown Square	0	1	26
Plasturton Gardens	0	3	0
Despenser ,,	0	3	19
Clare ,,	0	0	39½
Moorland ,,	1	2	13
Grangetown ,,	3	0	14
Llanbleddian ,,	0	0	37
Ruthin ,,	0	0	27
Senghenydd ,, (North)	0	1	6
,, ,, (South)	0	0	12½
Windsor Esplanade Gardens	0	1	37
Penylan Brook Gardens	6	0	0
Waterloo Gardens	3	0	0
Splott Recreation Ground	18	0	0
Llandaff Fields	70	3	2
Cathays Park	60	0	0
Allen's Bank Crescent Open Space	0	1	16
Grangetown Recreation Ground	9	2	0
Total	304	2	34

In addition to the above-named open spaces the public has, through the generosity of the owners, access to the following parks and fields :—

	A.	R.	P.
Sophia Gardens	43	0	25
Sir David's Field	8	3	19
Cardiff Arms Park	17	3	32

HOUSE ACCOMMODATION.—The following Table gives the number of houses within each Municipal Ward in Cardiff, as shown by the enumeration made in June, 1909, by the Inspectors in the Department of the Medical Officer of Health.

TABLE I.

MUNICIPAL WARDS.	Area in Acres.*	Houses Inhabited.	Houses Uninhabited.		Houses Building.	Total.	Population.
			Not in Occupation.	In Occupation for business purposes.			
Central	473	1,876	73	317	3	2,269	10,881
South	519	1,723	63	113	1	1,900	9,993
Cathays	369	3,968	26	14	17	4,025	23,014
Adamsdown	1,570	2,015	31	16	...	2,062	11,687
Riverside	313	3,144	66	...	...	3,210	18,235
Canton	449	4,355	53	20	27	4,455	25,259
Grangetown ...	1,905	3,466	73	16	4	3,559	20,103
Roath	766	3,028	143	20	83	3,274	17,562
Park	533	4,526	44	45	5	4,620	26,251
Splott	1,454	2,980	20	13	...	3,013	17,284
Totals	8,351	31,081	592	574	140	32,387	180,269

* Including inland water and foreshore.

TABLE II.

The following Table, taken from the Census returns, shows the number of inhabited houses and population in Registration Sub-districts in 1891 and 1901 :—

Registration Sub-Districts.	Area in Statute Acres, Land and Inland Water.	Inhabited Houses.		Enumerated Population		Increase or Decrease of Population between 1891 and 1901.	
		1891.	1901.	1891.	1901.	Increase.	Decrease.
East Cardiff ...	481	5,838	9,294	35,294	52,585	17,291	...
Central Cardiff ...	3,832	8,102	8,835	53,824	54,316	492	...
West Cardiff ...	2,060	6,536	9,843	39,797	57,432	17,635	...

According to the Census Returns of 1901 the total number of male persons over 10 years of age engaged in occupations was 52,085. The following Table shows the percentage proportion of these males engaged in certain occupations at the time of the Census enumeration :—

TABLE III.

Occupation.	Percentage of occupied males over 10 years of age.
On Seas, Rivers and Canals	8·3 per cent.
On Railways	5·7 ,,
General Labourers	5·5 ,,
Erectors, Fitters, Boiler Makers	5·4 ,,
In Docks	5·0 ,,
Commercial Clerks	5·0 ,,
Dealers in Food	4·6 ,,
Carpenters and Joiners	2·9 ,,
Masons and Masons' Labourers	2·8 ,,
Merchants, Agents, and Accountants	2·5 ,,
Carmen, Carriers	2·0 ,,
Messengers, Porters	2·0 ,,

The following Table shows the density of the population, or the average number of persons per acre of ground, within the City :—

TABLE IV.

Density of Population during the past ten Years.

Year.	Persons per Acre.*
1899	24·7
1900	25·3
1901	25·9
1902	26·5
1903	27·0
1904	27·6
1905	28·1
1906	28·8
1907	29·4
1908	30·0
1909	30·6

* Calculated on the basis of the revised population, and on area of 6,373 acres.

From an inspection of the district made in June, 1909, it was found that there were 592 vacant houses, and that 140 were in the process of building. There is, therefore, at the present time no lack of house accommodation in the City. Large block tenemented artizans' dwellings, so objectionable on account of the overcrowding on a limited area, do not exist in Cardiff. Most of the working class families occupy separate dwellings, with an open space in the back and front, and sub-let one or two rooms to lodgers or other small families. Private building companies have, in some quarters of the town, *i.e.*, Grangetown and Adamsdown, provided single tenement cottages, in which no lodgers are taken, at a rental of about 5/- per week. These houses provide excellent accommodation, containing usually four rooms in each house, and are seldom unoccupied for any length of time.

The number of houses and shops in the City for which plans have been passed in each year since 1894 is shown in the following Table :—

TABLE V.

From August	1894	to August,	1895	1,507
,, ,,	1895	,,	1896	1,196
,, ,,	1896	,,	1897	1,247
,, ,,	1897	,,	1898	1,258
,, ,,	1898	,,	1899	624
,, ,,	1899	,,	1900	267
,, ,,	1900	,,	1901	230
,, ,,	1901	,,	1902	185
,, ,,	1902	,,	1903	398
,, ,,	1903	,,	1904	225
,, ,,	1904	,,	1905	389
,, ,,	1905	,,	1906	291
,, ,,	1906	,,	1907	219
,, ,,	1907	,,	1908	307
,, ,,	1908	,,	1909	377

The following Table shows the action taken under Part II. of the Housing of the Working Classes Act, 1890, relating to houses unfit for human habitation since the Act came into force —

TABLE VI.

PLACE	Number of Houses.	Representations by Medical Officer of Health	Closing Orders Obtained.	Houses Demolished.	Houses Repaired.
Bryant's Court	2	2	2	...	...
Castle Court ...	5	5	5	5	...
Evans' Court	2	2	2		...
Gulliver's Court	2	2	2	.	...
Harris Court ...	6	6	...		6
Hodge's Row...	12	12	12		...
Jenkins Court	5	5	5	...	...
Jonathan's Court	2	2	2	2	
Love Lane Court	5	5	1	...	4
Mason's Arms Court	8	8	8	...	...
Matthews' Court	6	6	6	...	...
Moulders' Arms Court...	2	2	2	2	...
North Road ...	1	1	1	...	...
Picton Cottages	3	3	3	...	...
Spring Gardens Court	5	5	5	...	...
Stacey Court	4	4	4	4	...
Williams' Court	2	2	2	...	...
Totals ...	72	72	62	13	10

Courts, &c., in occupation :—

Crown Court
Davies' Court
Green Garden Court
Mack's Court
Old Sea Lock Court
Roberts' Court
Rowlands' Buildings
Trice's Court
Womanby Street Cottages

Courts, &c., demolished without representations :—

Dew's Court
Giles' Court
Kingston Court
Stagg Terrace

There are no large insanitary areas in the City which could be conveniently dealt with for the purposes of an improvement scheme under Part I. of the Housing of the Working Classes Act, 1890, but a considerable number of houses have been closed as unfit for human habitation, under the provisions of Part II. of the Act. Amongst the dwellings which have been permanently closed (since 1890) either by a closing order, as provided by Sec. 32 of the Act, or by the voluntary action of the owner, after initial proceedings by the Sanitary Authority, may be mentioned :—Mill Lane Court, 34 houses in Stanley Street, 12 houses in Leckwith Road, Kettle Court, Evans' Court, Union Buildings, Sandon Court, Dalton Court, Rising Sun Court, Jones' Court (Womanby Street), The Tunnel (Queen Street), Temperance Terrace (Working Street), Queen's Place, Mason's Arms Court, Love Lane Court, Castle Court, Moulders' Arms Court, Bryant's Court, Matthews' Court, Stacey Court, Picton Cottages, Stagg Terrace, Jenkins' Court, Gulliver's Court, Jonathan's Court, Spring Gardens Court, Hodge's Row, and Carpenters' Arms Court.

The erection of new houses, together with the construction of their drainage, is under the control of the City Engineer and Surveyor. All such dwellings are constructed subject to the new Building Bye-laws, which came into force on the 21st March, 1900.

WATER SUPPLY.—A full account of the Cardiff Waterworks has been given in previous annual reports. It will therefore be unnecessary to enter into any details on this occasion.

The water supplied to the City, and to areas beyond the City boundaries as provided by Act of Parliament, is a pure, soft water, derived from the gathering grounds, on the old red sandstone formation, to the north of the South Wales coalfield, about 35 miles from Cardiff, in the Taff Fawr Valley, Breconshire. The water is conveyed by gravitation from the storage reservoirs at Taff Fawr to the reservoirs at Llanishen and Lisvane, balancing reservoirs being placed at suitable situations along the line of the main conduit, with filter beds of sand, etc., at Rhubina and the Heath. At the latter place Candy's Polarite Filters are also in operation. The capacity of the storage reservoirs is as follows :—

Beacons Storage Reservoir	345,000,000 gallons
Cantreff ,, ,, ...	323,000,000 ,,
Llanishen ,, ,, ...	317,000,000 ,,
Lisvane ,, ,, ...	80,000,000 ,,

The high level service is supplied from Rhubina, at which place the works comprise filter beds and storage reservoirs, supplemented by a service reservoir and water tower at Penylan, supplied with water by gravitation from Rhubina.

The average annual rainfall at the Brecon Beacons for the past 25 years was 76·30 inches, the total during 1909 being 82·44 inches.

I am indebted to Mr. C. H. Priestley, M.I.C.E., the City Waterworks Engineer, for the following information relating to the new works now in course of construction.

During the past session of Parliament the Cardiff Corporation obtained further powers to acquire land to construct an additional reservoir at Taff Fawr to meet the requirements of the increasing population.

The drainage area in connection with the new reservoir (No. 3) is 6,400 acres in extent, in addition to 4,000 acres already in use, and the total storage of water in the reservoirs will amount to 1,971,000,000 gallons, including 906,000,000 gallons, the capacity of the new reservoir. It is estimated that an average supply of water of about 30 gallons per head of the population will be available on the completion of these works.

The water is of excellent quality as will be seen from the following analyses :—

BACTERIOLOGICAL EXAMINATION OF SAMPLES OF CARDIFF WATER.

Date Collected.	Source of Sample.	Number of Organisms per c.c.	Remarks.
1909.			
May 13th	Heath Filters	6	B. Coli absent from 40 c.c.
,, 13th	Rhubina Filters	12	B. Coli absent from 40 c.c.
,, 13th	Llanishen Reservoir ..	108	B. Coli absent from 40 c.c.
,, 13th	Lisvane Reservoir	8	B. Coli absent from 40 c.c.
,, 13th	Cantreff Reservoir	2	B. Coli absent from 40 c.c.
,, 13th	Beacons Reservoir	24	B. Coli present in 40 c.c.

CHEMICAL ANALYSIS OF SAMPLES OF CARDIFF WATER.

(All results are stated in parts per 100,000).

Date Collected.	Source of Supply.	Reaction.	Hardness.	Chlorine.	Ammonia		Nitrogen as Nitrates.	Oxygen Absorbed, 4 hours, 80°F.
					Free	Albuminoid.		
1909. September 6th	Heath Filters ...	Alkaline	3·6°	·75	·0010	·0042	Traces	·067
,, 6th	Rhubina Filters ...	Alkaline	3·7°	·75	·0014	·0058	Traces	·110
,, 6th	Llanishen Reservoir	Faintly Alkaline	2·9°	·75	·0014	·0082	Traces	·119
,, 6th	Lisvane Reservoir ...	Faintly Alkaline	2·85°	·85	·0018	·0112	Traces	·124
,, 6th	Cantreff Reservoir ...	Faintly Alkaline	2·7°	·75	·0036	·0098	·005	·202
,, 6th	Beacons Reservoir ...	Faintly Alkaline	2·6°	·70	·0028	·0092	·004	·152

SEWERAGE.—With the exception of one or two cottages situated in the outskirts, all houses are provided with water closets and are drained into the public sewers. It is to be regretted that owing to insufficient legal powers a large number of the water-closets in the back-yards or gardens of the older houses are not supplied with flushing cisterns. However, since the adoption in 1900 of new Building Byelaws, every water-closet constructed since that date is furnished with a suitable and separate flushing cistern.

The sewerage is conveyed by gravitation through pipe drains and brick sewers to the outfalls. Those on the eastern side of the River Taff discharge by three outfalls into the Bristol Channel. An entirely new main outfall sewer for the western district is now in course of construction, and practically completed, discharging some distance below Cardiff into the Bristol Channel at Lavernock Point.

I am indebted to Mr. W. Harpur, M.I.C.E., City Engineer, for the following information relating to this sewer :—

Owing to the increase of the population, and in the number of new houses, the capacity of the Western Sewer was found insufficient to carry off the sewage and storm water, and a new outfall was rendered necessary. This outfall is situated in such a position that the sewage will be carried away and dispersed without the possibility of fouling the foreshore, and discharged for four hours at high water, where at spring tides the velocity is about five knots per hour on the ebb. In calculating the required capacity of the new outfall sewer, allowance has been made for the contributions from a population of 200,000, and with a view to the reception of sewage from certain outlying districts, at present inadequately drained. The new scheme involves the construction of three intercepting sewers, starting at three points in the existing main sewer and converging to a junction in Penarth Road. From this junction a six feet diameter circular sewer will convey the sewage and storm waters along Penarth Road for a distance of 1,500 yards at a gradient of 1 in 1,650 to the Pumping Station. The sewage to a maximum rate of pumping equivalent to 150 gallons per head per day of the population will be pumped to a height of 56·5 feet above ordnance datum, from whence it will gravitate to the outfall. The storm-waters over and above this quantity will discharge into the River Ely, which is a tidal river ; the existing outfall into the estuary of the River Taff will also be available for the overflow of storm-waters. After leaving the Pumping Station, which is in a position adjoining the bridge over the River Ely, the sewage passes into the " rising mains " to the head of the gravitation sewer, from which to the outfall at Lavernock is a distance of 4·4 miles, the last $1\frac{1}{12}$ mile of which consists of a reservoir sewer 13 feet in diameter, having a storage capacity of $4\frac{1}{2}$ million gallons. This provision for storage was determined upon, as it was decided to limit the period for discharge to 4 hours at each tide, *i.e.*, from $1\frac{1}{2}$ hours before to $2\frac{1}{2}$ hours after high water, in order that during these hours all sewage discharged would at once be carried out to sea without any fear of deposit on the shore. The trunk sewer extending from the top of the rising mains to the commencement of the reservoir sewer, a distance of about 3·3 miles, is laid at a gradient of 1 in 1,950. The outfall conduit from the penstock chamber to low water of spring tides is 546 yards in length, and consists of 36 inch diameter cast iron pipes. The whole of these works have been designed by and carried out under the supervision of the City Engineer.

FOOD INSPECTION.—The inspection of meat and other foods has been systematically carried out during the year. There are no private slaughter-houses within the City; all the slaughtering is therefore carried out at the two Municipal Abattoirs, situated respectively in the districts of Roath and Canton. As will be seen by the tables, by far the largest amount takes place in the Roath Abattoir.

A re-arrangement of the duties of the staff of inspectors has been effected during the year, with a view of still further increasing the efficiency of the inspection. Formerly the staff of inspectors at the Roath slaughter-house consisted of the Veterinary Surgeon, Mr. P. J. Mullane, acting as Chief Meat Inspector, who was assisted by the Manager of the slaughter-house and four of his assistants. Some inconvenience was caused by the fact that some of these officials were not entirely under the control of the Committee which has concern with meat inspection. It was felt desirable to place the meat inspection entirely in the hands of properly qualified men. The Health Committee decided, therefore, to appoint two new Inspectors holding the certificate of meat inspection of the Royal Sanitary Institute, who, together with another Inspector similarly qualified (already upon the staff), should act at the slaughter-houses under the immediate direction of Mr. Mullane. This arrangement came into operation in September, 1909, and has worked well up to the present time, although a further improvement might in my opinion be effected, by placing all the staff engaged at the slaughter-houses under the control of the Committee responsible for meat inspection. The Chief Meat Inspector and his assistants would then have control over the slaughter-men, and be responsible for the cleansing of the premises and for the execution of the bye-laws relating to the slaughter-houses.

Most of the meat destroyed as unfit for food is surrendered voluntarily by the owner, usually a butcher, and the Inspectors have directions to pay regard to the recommendation of the Select Committee to the effect that "If a butcher who is in possession of tuberculous meat has notified the fact to the proper authority as soon as he could be reasonably expected to be aware of it, the case should not be taken into Court." Upon the new arrangement coming into force, a joint meeting of the local Butchers Association and members of the Health Committee took place, when certain details of administration were discussed and agreed upon, and as the result of this meeting the following instructions, approved by the members present, were issued to the Meat Inspectors :—

INSTRUCTIONS TO MEAT INSPECTORS.

(1) That in all cases in which the attention of butchers and slaughterers is called to the diseased condition of carcase or internal organs by the Meat Inspectors, the butcher or slaughterer be required either to surrender the carcase, etc., immediately, by signing surrender note, or to give notice in writing to the Chief Inspector (Mr. Mullane) that he desires the carcase, etc., to be detained for further examination.

(2) That such detention is not to extend beyond a period of 72 hours between the 1st May and 30th September, and 144 hours between the 1st October and 30th April.

(3) That the notice to the Chief Inspector must be given immediately the attention of the butcher or slaughterer is called to the condition of the carcase, etc.

(4) The notice may be given to one of the Meat Inspectors on duty at the time, or be left at the office of the Chief Inspector at the Roath Slaughter-house.

(5) That diseased pigs be dealt with in the same way that diseased carcases, etc., of other animals are now dealt with, i.e., in accordance with recommendations of Royal Commission.

TABLE VII.

Showing the amount of meat and other food found by the Medical Officer of Health to be unfit for food, and destroyed, either with the consent of the owner, or by an order of a magistrate, in each year since 1896 :—

Year.	Food.
1896	3,896 lbs.
1897	10,824 ,,
1898	9,929 ,,
1899	14,205 ,,
1900	21,217 ,,
1901	33,696 ,,
1902	43,675 ,,
1903	41,710 ,,
1904	41,606 ,,
1905	41,212 ,,
1906	48,909 ,,
1907	54,180 ,,
1908	146,102 ,,
1909	164,204 ,,

TABLE VIII.

Animals slaughtered at the Municipal Slaughter-houses during the year, 1909 :—

	Roath Abattoir.	Canton Abattoir.	Totals.
Cattle	7,391	778	8,169
Sheep	45,548	4,804	50,352
Calves	4,723	256	4,979
Pigs	19,910	4,028	23,938
Totals	77,572	9,866	87,438

TABLE IX.

Unsound carcases of meat seized or surrendered at Abattoirs :—

Place.	Carcases of				Destroyed by Magistrate's Order.	Destroyed by Arrangement with Owner.
	Beef.	Mutton.	Pork.	Veal.		
Roath Abattoir	27	16	53	6	—	102
Canton Abattoir	6	1	8	—	—	15
Totals	33	17	61	6	—	117

TABLE X.

Causes of destruction of carcases :—

Cause.	Beasts.	Sheep.	Calves.	Pigs.	Totals.
Asphyxiation	—	1	—	1	2
Bruised	—	—	—	1	1
Cirrhosis	—	—	—	2	2
Dropsy	1	2	1	—	4
Emaciation	—	3	—	—	3
Emaciation and Dropsy . .	2	4	—	—	6
Fluke and Jaundice	—	1	—	—	1
Found Dead . .	—	6	1	1	8
Injuries	—	—	1	—	1
Jaundice	—	—	—	1	1
Peritonitis and Pleurisy	—	—	—	1	1
Pleurisy	1	—	—	3	4
Pleurisy and Emaciation	1	—	—	—	1
Prematurity	—	—	2	—	2
Septicaemia	—	—	1	—	1
Septic Peritonitis	—	—	—	1	1
Tuberculosis	28	—	—	49	77
Uraemia	—	—	—	1	1
Totals	33	17	6	61	117

Weight of meat (whole and part carcases) seized or surrendered at Abattoirs :—

Beef	40,596	lbs.
Mutton and Lamb	1,561½	,,
Pork	7,286½	,,
Veal	443	,,
Total	49,887	,,

Meat and other food seized or surrendered at Shops, Stores, &c. :—

Beef	6,230	lbs.
Mutton	1,461	,,
Pork	1,081	,,
Veal	54	,,
Rabbits	135	,,
Poultry	82	,,
Fish	23,808	,,
Vegetables	20,546	,,
Fruit	48,508	,,
Provisions	12,312	,,
Nuts	100	,,
Total	114,317	,,

In addition to the foregoing, 34 gallons of milk and 150 oysters were destroyed. In six cases Magistrates Orders for destruction were obtained, as follows:—13 boxes of dates (13lbs.), 1 carcase of mutton (50lbs.), quantity of cherries (500lbs.), quantity of cherries (300lbs.), 54 cases of tomatoes (6,912lbs.), and 1 quarter of beef.

TABLE XI.

The following Table shows the number of animals slaughtered, the number condemned, and the percentage proportion condemned in the municipal slaughter-houses in each of the years 1900—1909.

	Year.	Number of Animals Slaughtered	Number of Animals Condemned	Percentage Condemned
Roath	1900	83,880	30	
Canton	,,	10,783	1	
Total	...	94,663	31	0·03
Roath	1901	69,385	61	
Canton	,,	10,578	5	
Total	...	79,963	66	0·08
Roath	1902	73,528	66	
Canton	,,	11,518	9	
Total	...	85,046	75	0·09
Roath	1903	69,146	72	
Canton	,,	12,112	5	
Total	...	81,258	77	0·09
Roath	1904	74,550	80	
Canton	,,	11,154	8	
Total	...	85,704	88	0·10
Roath	1905	70,076	74	
Canton	,,	10,482	10	
Total	...	80,558	84	0·10
Roath	1906	67,155	94	
Canton	,,	10,428	14	
Total	...	77,583	108	0·14
Roath	1907	68,845	81	
Canton	,,	10,888	9	
Total	...	79,733	90	0·11
Roath	1908	71,212	103	
Canton	,,	10,284	7	
Total	...	81,496	110	0·13
Roath	1909	77,572	102	
Canton	,,	9,886	15	
Total	...	87,438	117	0·13

SALE OF FOOD AND DRUGS ACTS.—The following Table shows the number of samples submitted during the year 1909, to the Public Analyst, Mr. Thomas Hughes, F.I.C., F.C.S., Cardiff :—

TABLE XII.

Description of Samples.	Number of Samples.	Genuine.	Adulterated.
Arrowroot	3	3	—
Beer	6	6	—
Brandy	1	1	—
Bread	9	9	—
Butter	58	56	2
Butter (informal)	7	7	—
Cheese	11	11	—
Coffee	12	11	1
Compound Liquorice Powder	3	3	—
Cornflour	2	2	—
Flour	10	10	—
Ginger	3	3	—
Honey (informal)	1	1	—
Lard	18	18	—
Margarine	17	17	—
Milk	464	416	48
Milk (skimmed)	12	9	3
Milk (informal)	39	38	1
Oatmeal	8	8	—
Pepper	7	7	—
Precipitated Sulphur	3	3	—
Sago	2	1	1
Self-raising Flour	3	3	—
Vinegar	1	1	—
Totals	700	644	56

TABLE XIII.

Legal proceedings under the Sale of Food and Drugs Acts :—

No. of Sample.	Description of Sample.	Percentage of Adulteration.	Fines.	Remarks.
25	Milk	12.7% added water and 5% deficient fat.	£1	Including costs
46	,,	13.7% added water	£5	Including costs.
61	,,	22.2% added water	—	To pay costs (5/6)
63	,,	10.7% added water	—	Dismissed
75	,,	10.7% deficient fat	10/–	And costs (9/–).
95	Butter	Margarine containing only 8% of butter	—	Unable to serve summons.
98	,,	Margarine containing only 9% of butter	10/–	Including costs.
108	Milk	7% deficient fat	£10	And costs (£1 3s. 6d.)
114	,,	7.2% added water	£3	And costs (16/6).
133	,,	7.7% added water	—	Cautioned.
147	,,	7.7% deficient fat	£1	Including costs.
167	,,	8% deficient fat	£3	And costs (12/6).
173	,,	15% deficient fat	—	Dismissed.
187	,,	8.3% deficient fat	10/–	Including costs.
188	,,	13% deficient fat	£2	Including costs
189	,,	10.7% deficient fat	£2	Including costs.
190	,,	11.7% deficient fat	£1	Including costs.
204	,,	11% deficient fat	—	Dismissed.
270	,,	23.3% deficient fat	10/–	Including costs.
276	,,	10% deficient fat	—	Withdrawn
293	,,	34.3% deficient fat	£2	And costs (9/–).
308	,,	20% deficient fat	5/–	And costs (1/–).
315	,,	6.7% deficient fat	£3	And costs (£1 3s. 0d.)
396	,,	8% deficient fat	£5	Including costs.
414	,,	9% deficient fat	10/–	Including costs.
415	,,	0.011% boric acid	5/–	Including costs.
574	Milk (skimmed)	0.019% boric acid	10/–	And costs (6/–)
576	,, ,,	13.5% added water and 0.01% boric acid	£30	And costs (6/–).
609	Milk	12.3% deficient fat	—	Dismissed.

TABLE XIV.

Adulterated samples where no legal proceedings were taken :—

No. of Sample.	Description of Sample.	Percentage of Adulteration.	Remarks.
77	Milk	2% deficient fat ...	—
79	,, ...	2.3% deficient fat	—
84	,, ...	2.3% deficient fat ...	—
109	,, ...	3% added water ...	—
112	,, ...	1.7% added water	—
113	,, ...	2.3% added water ...	—
139	,, ...	6.3% deficient fat	Wholesale; taken in transit; no contract for supply of new milk.
166	,, ...	2% added water	—
176	,, ...	2% deficient fat ...	—
203	,, ...	1% deficient fat ...	—
235	Sago ...	Was tapioca not sago	—
260	Milk	2% deficient fat ...	—
268	,, ...	2.3% deficient fat ...	—
287	,, ...	3% deficient fat	—
294	,, ...	3% deficient fat ...	—
311	,, ...	1% deficient fat ...	—
313	,, ...	1% deficient fat	—
327	Coffee	51% chicory	Not sold as pure coffee.
340	Milk	2% deficient fat ...	—
343	,, ...	2% added water	—
345	,, ...	1% deficient fat ...	—
398	,, ...	3% added water ...	—
444	,, ...	3% deficient fat	—
496	,, ...	2% deficient fat	—
506	,, ...	2% deficient fat	—
535	Milk (skimmed) ...	0.017% boric acid	Inspector was informed that milk contained boric acid.
584	Milk	8% added water	Informal sample.

Legal proceedings are not taken in cases in which the adulteration is small, and generally when the amount of added water is less than 5%.

When necessary, the attention of the dealer is called to the inferior quality of the milk.

TABLE XV.

Samples of milk analysed and proportion adulterated :—

	Number of Samples Analysed.	ADULTERATED.						
		Number	Percentage	Added Water.	Deficient Fat.	Added Water and Deficient Fat.	Preservatives.	Added Water and Preservatives.
WHOLESALE— Taken at Railway Stations ...	142	13	10·1	4	8	1	—	—
RETAIL— Taken in shops, carts, etc. ...	373	39		8	27	—	3	1

The following report dealing with the adulteration and contamination of milk, was submitted to the Health Committee in December, 1909 :—

REPORT OF MEDICAL OFFICER OF HEALTH.

" I beg to submit for your consideration the following report upon the methods at present adopted in connection with the storage and distribution of milk at railway stations.

This question has already received some attention from your Committee, and a report was presented by me in the year 1906, dealing with the possibilities of contamination during the railway transit and distribution of milk. In that report, and in a paper read by me before the Society of Medical Officers of Health, a case was cited in which a prosecution under the Sale of Food and Drugs Acts was undertaken on behalf of the Cardiff Corporation, and in which a conviction was obtained for abstracting cream, and a fine of £20 and costs inflicted. In this case the sample was taken on delivery at the Great Western Railway Station about 3 a m., shortly after the arrival of the last milk train. The churn from which it was taken had been at the station since about 7 p.m. on the previous evening. The defendant endeavoured to prove that one gallon of milk had been abstracted, and that this consisted chiefly of the cream which had risen to the surface during the prolonged stay at the station. Although the defendant was unable to bring forward sufficient evidence for a successful defence, the possibility of such abstraction must not be overlooked, and it is upon this point that I would at the present time direct your attention, as it also has some bearing upon the question of contamination during the period of storage at railway stations.

Practically all the churns stored at these stations are unlocked, and it seems impossible to induce dealers to protect themselves by locking their churns, notwithstanding the fact that railway companies make no objection to locked churns and make no extra charge for their transit, provided that the tare weight is stamped outside the churn.

In the Annual Reports issued by the Board of Agriculture, several instances are cited in which it was alleged that loss of cream had occurred during the railway transit of the churns. There can therefore be no doubt that the methods usually adopted by milk dealers and railway companies offer considerable facilities for tampering with the milk during railway transit and storage.

With respect to the contamination of milk by dust, dirt, and other impurities whilst under the charge of railway companies, it is obvious that the insecure methods of fastening the churns, whilst facilitating abstraction of cream, afford, at the same time, frequent opportunities for the entrance of impurities. It has been my practice from time to time to send to our Public Health Laboratory samples of milk for bacteriological examination, as the evidence derived from such examination affords an indication of the nature of the contamination. It has been found that with ordinary care and moderate cleanliness it is quite possible to obtain milk with not more than 30,000 bacteria per cubic centimetre. The results of the examination of samples of milk taken from the Railway Station showed that only 30 per cent. came up to this standard.

An examination of 1,326 samples of milk (152 of which were from the Railway Station) submitted to the Public Analyst from January 1st, 1907, to October 31st, 1909, showed that 13·8 per cent. of the railway samples were adulterated, as compared with 9·8 per cent. of the samples taken from retail shops and carts.

It should be mentioned, however, that the results of a most extensive and elaborate investigation carried out on behalf of the Administrative Counties of the East and West Ridings of Yorkshire, and the County Boroughs of Bradford, Hull, Leeds, Rotherham, and Sheffield, indicate generally that the greatest amount of contamination occurs at the cowshed, and is largely attributable to—(*a*) The dirty condition of the cows udders ; (*b*) The imperfect cleansing of the cans and other milk receptacles. However this may be, it is clear that the opportunities of contamination are considerably increased during railway transit and storage, and, indeed, the same report recommends the following precautions on the part of railway companies :—

(1)—The urgent necessity for rapid transit, especially during warm weather.

(2)—The provision of special vans, kept scrupulously clean and reserved for the milk traffic.

(3)—The necessity for maintaining the milk at a temperature not exceeding 50° F. during the time it remains in their charge.

(4)—The provision of a special shed in which milk should be placed immediately on its arrival at the station. This shed to be kept clean and cool and used only for milk traffic.

The enclosed Table shows the number of samples of all kinds and of milk taken for analysis in Cardiff, in thirty-three large towns, and in the Administrative County of Glamorgan during 1908. From this Table it will be seen that the proportion of samples of all kinds taken in Cardiff is considerably above the average. The proportion of adulterated samples of milk in Cardiff in 1908 was 10·2 per cent., corresponding closely with the proportion throughout the country. Amongst the districts mentioned in the Table, eighteen showed a larger proportion of adulteration.

Most of the milk supplied to the inhabitants of Cardiff is delivered at the Great Western Railway Station, and remains either on the passenger platform or on a separate part of that platform over-night, the local milk dealer usually fetching it for delivery to his customers in the early morning. There are several sources of contamination to which milk is subject during the time it is in the charge of the Railway Company. For some of these conditions the milk vendor is responsible, whilst over others he has no direct control. The following procedure might with advantage be adopted by the milk vendor :—

(*a*)—The protection of the milk in transit by the provision of locked churns. This point has been already alluded to, and most of the large wholesale dealers are aware that railway companies offer no objection to locked churns under the conditions named.

(*b*)—The proper construction of the lid of the churn in order to prevent contamination of the milk by dust and rain. Most of the churns used are constructed in such a way that any rain or dust falling upon the lid, which is funnel shaped and quite unprotected, gains access to the milk. It would be impossible to design a lid more calculated to allow contamination than that in common use. Further, these lids are usually provided with holes for ventilation, which are quite unnecessary and offer additional facilities to entrance of dirt, &c. There is no difficulty in obtaining a rain proof churn, of which there are several forms in the market.

(*c*)—A more efficient cleansing of the churns. A churn recently seen by me at the Railway Station, which presumably had been cleaned, contained a considerable quantity of dirty water. It is seldom that any attempt is made to sterilize churns by boiling water or steam. The usual method is to pour into a large seventeen gallon churn a totally insufficient quantity of warm water which is quite inadequate for the purpose of sterilization.

Amongst the conditions contributing to the contamination of milk for which railway companies are responsible may be mentioned :—

(1)—The condition of the railway vans. Refrigerator vans are, I believe, quite unknown in this country, although it is of the first importance that milk in transit should be maintained at a low temperature. Usually badly ventilated luggage vans are used, containing a miscellaneous assortment of goods, sometimes meat, fish, and vegetables, and occasionally live-stock.

(2)—Unsuitable provision for storage at the railway station. In Cardiff, as in most other places, no special place is provided at the station for receiving or keeping churns. They are placed on the platform and exposed to the dirt and dust of the place, and very often in the summer to an extremely high temperature. This exposure usually lasts overnight.

In many cases the contents of the farmers' churns are emptied into the milkmen's cans just outside the entrance to the station, the cart being either upon the macadamised road or upon a paved cabstand ; in both cases they are subject to considerable contamination. On more than one recent occasion I have seen several lids of churns placed on the railway station railings, and occasionally some of them in the mud on the ground.

In my opinion railway companies should be called upon in the interest of the public health to provide properly ventilated and suitable vans reserved for milk only, and refrigerator vans during the summer, cool and properly constructed places for the storage of milk churns, and to prevent the transference of milk to dealers cans upon the railway station premises. Further, the attention of the companies might be called to the necessity for the rapid transit of the milk by train, especially during the warm weather. It is obvious that the Regulations made under the Dairies, Cowsheds and Milkshops Orders do not contain provisions capable of dealing with the existing methods adopted by railway companies interested in the milk trade. Regulation No. 17 (1) provides that " every purveyor of milk or person selling milk by retail shall take all reasonable and proper precautions in and in connection with the storage and distribution of milk, and otherwise to prevent the exposure of the milk to any infection or contamination." This provision is therefore quite inadequate for the protection of the milk while under the charge and control of the railway company.

Under these circumstances I would urge upon your Committee the desirability of making a strong representation to the Board of Agriculture and Fisheries and to the Railway Companies concerned, with a view of improving the conditions of the milk trade in the directions indicated in this report."

Samples of all kinds and of milk taken for analysis in Cardiff, in thirty-three large towns, and in the Administrative County of Glamorgan during 1908 :—

DISTRICTS.	Estimated Population, 1908.	Total Number of Samples Analysed.	Samples per 1,000 of the Population.	Total Samples Adulterated	Percentage Adulterated	Samples of Milk Analysed.	Samples of Milk Adulterated.	Percentage of Milk Samples Adulterated.
Birkenhead	119,830	217	1·8	13	6·0	95	7	7·3
Birmingham	558,357	2,068	3·7	190	9·2	788	101	12·8
Blackburn	135,961	287	2·1	23	8·0	156	14	8·9
Bolton	185,358	429	2·3	24	5·6	214	24	11·2
Bradford	292,136	749	2·5	39	5·2	459	22	4·8
Brighton	129,967	501	3·8	56	11·1	375	49	13·0
Bristol	372,785	1,301	3·5	133	10·2	649	102	15·7
Burnley	105,100	379	3·5	32	8·4	87	6	6·9
CARDIFF	191,446	700	3·6	60	8·6	469	48	10·2
Croydon	157,698	438	2·7	54	12·3	196	21	10·7
Derby	127,583	112	0·9	18	16·0	72	10	13·9
Gateshead	128,393	152	1·2	16	10·5	75	13	17·3
Halifax	111,018	201	1·8	17	8·4	139	10	7·2
Hull	271,137	691	2·5	12	1·7	454	10	2·2
Leeds	477,107	606	1·3	112	18·4	491	95	19·3
Leicester	240,172	445	1·8	5	1·1	216	5	2·3
Liverpool	753,203	2,133	2·8	195	9·1	919	131	14·2
Manchester	649,251	2,720	4·2	106	3·9	1,088	51	4·7
Middlesbrough	103,511	294	2·8	45	15·3	120	43	35·8
Newcastle-on-Tyne	277,257	584	2·1	74	12·6	319	61	19·1
Norwich	122,841	204	1·6	29	14·2	138	25	18·1
Nottingham	260,449	730	2·8	160	21·9	351	48	13·6
Oldham	142,507	256	1·8	5	1·9	132	3	2·2
Plymouth	122,113	240	1·9	19	7·9	89	16	17·9
Portsmouth	211,493	1,027	4·8	86	8·3	533	27	5·0
Preston	117,799	282	2·4	27	9·6	75	15	20·0
Salford	239,294	904	3·7	29	3·2	425	24	5·6
Sheffield	463,222	817	1·7	65	7·9	513	50	9·7
Southampton	122,196	449	3·6	43	9·6	261	26	9·9
South Shields	115,535	150	1·3	16	10·6	66	15	22·7
Stockport	102,339	303	2·9	23	7·5	147	17	11·5
Sunderland	157,693	236	1·5	31	13·1	84	20	23·8
West Ham	315,000	1,249	3·9	90	7·2	725	62	8·5
Wolverhampton	103,318	247	2·4	23	9·3	88	9	10·2
Glamorgan (County Jurisdiction)	601,092*	939	1·5	62	6·6	522	43	8·2

* Census, 1901.

INSPECTION OF FACTORIES AND WORKSHOPS.—The Factory and Workshop Act of 1901 makes considerable alterations in, and additions to, the duties hitherto falling upon Medical Officers of Health. Under Section 132, the Medical Officer of Health is required in his Annual Report to deal specifically with the administration of the Act (so far as the matters under the charge of the Sanitary Authority are concerned), and to send a copy of this report to the Secretary of State.

The work carried out during the year 1909 is shown in Tables XVI. to XVIII.

Sec. 101 of the Act imposes important duties on Sanitary Authorities in regard to underground bakehouses. This Section provides that no underground bakehouse shall be used as such unless it was so used at the time of the passing of the Act, *i.e.*, August 17th, 1901, and further, that after the 1st of January, 1904, no underground bakehouse (whenever established) may be used unless the Sanitary Authority is satisfied that it is suitable for the purpose in regard to construction, light, ventilation, and in all other respects, and has given a certificate of suitability. A definition of the term " underground bakehouse " is given for the first time in this Act :—" A bakehouse is to be deemed an underground bakehouse if any room used for baking or for any process incidental thereto is so situate that the surface of the floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room "

In Cardiff there were only eight underground bakehouses at the time of the passing of the Act of 1901. Four of these have since been abolished as entirely unsuitable for the purpose, and one has been relinquished for other reasons, leaving three for which certificates were granted after completion of alterations required by the Sanitary Authority.

" Factories " include all places in which mechanical power is used in aid of the manufacturing processes, and certain other industries specified in Part 1. of Schedule VI. to the Act, whether mechanical power is used or not. The duty devolving upon the Health Department in connection with factories is confined to the enforcement of Section 22 of the Public Health Acts Amendment Act, 1890, relating to the provision of suitable and sufficient sanitary conveniences. The inspections of Factories referred to in the Tables were in connection with this duty.

" Workshops " include premises (not being factories) in which manual labour is exercised by way of trade or for purposes of gain in, or incidental to, the making, altering, repairing, finishing or adapting for sale any article, and to or over which the employer of the persons working there has the right of access or control.

The Workshop Inspectors made 4,272 inspections of factories, workshops, &c., during the year. The premises of dressmakers and milliners and any other workshops in which women were employed were in some cases inspected by the Women Inspectors. A considerable number of new workshops have been added to the register, and the work in this department has been so much increased that the staff has been increased in order to carry on the inspection in a more complete manner.

Workplaces, although not defined in the Act, include any place where work is done permanently and where people assemble together to do work permanently of some kind or another, such as stables, kitchens of restaurants, &c. Thirty-one inspections of such places have been made during the year.

HOME WORK.—Eighty lists of outworkers were received, giving the names and addresses of 344 work-people engaged in home work. Great importance is attached to the inspection of places in which these outworkers are engaged, the object being to prevent unwholesome conditions or nuisances injurious to the health of the workers. Sections 107–115 of the Act of 1901 give power to the Local Authority to prohibit work being done by outworkers, (1) in dwellings which are injurious or dangerous to the health of the workers themselves, *e.g.* through overcrowding, want of ventilation, or other insanitary conditions, (2) in premises where there is dangerous infectious disease. In two instances infectious disease of some kind was found upon the premises of outworkers, and orders were made prohibiting the occupier of the factory or workshop from giving out work to the persons living upon the premises until they were free from infection. Nuisances found upon these premises were abated in the ordinary way under the provisions of the Public Health Acts and Sanitary Byelaws.

The following information is set forth on the form supplied by the Secretary of State, a copy of which was forwarded to the Home Office in January of the present year.

TABLE XVI.

INSPECTION OF FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES AND HOMEWORK.

I.—INSPECTION.

Premises.	Number of		
	Inspections	Written Notices	Prosecutions
Factories (including Factory Laundries)	129	74	—
Workshops (including Workshop Laundries)	3,940	678	2
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	31	6	—
Total	4,100	758	2

2.—DEFECTS FOUND.

Particulars	Number of Defects		
	Found	Remedied	Prosecutions
Nuisances under the Public Health Acts :—			
Want of cleanliness	135	135	—
Want of ventilation	42	42	1
Overcrowding	3	3	—
Want of drainage of floors	—	—	—
Other nuisances	248	248	—
*Sanitary accommodation — insufficient	46	46	—
*Sanitary accommodation — unsuitable or defective ...	395	395	1
*Sanitary accommodation — not separate for sexes ...	29	29	—
Breach of special sanitary requirements for bakehouses (Sec. 97 to 100).	3	3	—
Total	901	901	2

* Section 22 of the Public Health Acts Amendment Act, 1890, adopted. Standard according to Order of Secretary of State under Section 9 of the Factory and Workshop Act, 1901.

3—HOME WORK.

Nature of Work.	Outworkers' Lists, Section 107.						Number of Inspections of Out-workers' Premises.	Outwork in Infected Premises, Sections 109, 110.	
	Lists received from Employers.				Number of Addresses of Out-workers received from other Councils.	Number of Addresses of Out-workers forwarded to other Councils.		Instances.	Orders made (S. 110).
	Twice in the Year.		Once in the Year.						
	Lists.	Out-workers.	Lists.	Out-workers.					
Wearing Apparel :— (1) Making, &c.	76	338	4	6	1	—	172	2	2
(2) Cleaning and Washing ...	...	...	...	...	...	...	...	...	...

4.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the Year.	Number
Bakers	185
Tailors	167
Dressmakers	134
Milliners	65
Bootmakers	107
Laundries	48
Other	413
Total number of Workshops on Register ...	1,119

5.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (Sec. 133) ...	55
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts but not under the Factory Act :—	
Notified by H.M. Inspector	85
Reports (of action taken) sent to H.M. Inspector	85
Other (Sec. 127, Sub.-Sec. 3)	175
Underground Bakehouses in use at the end of the year	3

TABLE XVII.

Showing the number of Factories, Workshops, &c., on the registers, and the number of inspections made during 1909 :—

Factories, Workshops, &c.	Number on Registers.	Number of Inspections.
Bakers	202	872
Bootmakers	119	429
Dressmakers and Milliners	339	353
Laundries	58	273
Tailors	308	853
Miscellaneous	499	1,492
Totals	1,525	4,272

The foregoing table includes factories, workplaces and outworkers premises as well as "Workshops."

TABLE XVIII.

Nuisances in factories, workshops, &c. :—

Nuisances Abated.		Bakers.	Boot-makers.	Dress-makers, &c.	Laundries.	Tailors.	Miscel-laneous.	TOTALS.
Want of cleanliness		38	7	9	12	35	34	135
Want of ventilation		1	...	7	3	29	2	42
Overcrowding		...	...	2	...	1	...	3
Sanitary Accommodation	Insufficient	3	1	2	...	1	39	46
	Unsuitable or defective	22	18	15	11	36	114	216
	Not separate for sexes	..	1	2	1	10	15	29
Defective and choked drains		4	7	4	2	3	13	33
Want of flushing apparatus		37	18	14	8	34	35	146
Offensive accumulations		3	2	1	1	...	...	7
Other nuisances		50	22	18	29	44	80	243
Totals		158	76	74	67	193	332	900

SHOP HOURS ACT, 1904.—This Act, which came into operation during the year 1904, enables Local Authorities to make Closing Orders fixing the hours of closing on the several days of the week, either in the entire area of the district of the Local Authority or in any specified part thereof. The Closing Order may apply to all shops of any specified class.

The Act requires that the occupiers of shops desirous of promoting early closing should apply to the Local Authority, who may then take further steps in accordance with the provision of the Act.

Number of Shops and Persons affected by Closing Orders, and number of Inspections during 1909, made under the Shop Hours Act, 1904 :—

Number of Order.	Trade.	Area.	Number of shops.	Approximate number of persons	Number of Inspections.
1	Barbers ...	Whole City	181	400	1,158
2	Bootmakers	Grangetown	38	64	245
3	Bootsellers	Central Area	42	118	562
4	,,	Roath, Cathays and Park	107	182	480
5	,,	Riverside and Canton	48	90	192
6	Goldsmiths, &c.	Central Area	50	85	322
7	Pawnbrokers	,,	9	20	103
8	Goldsmiths, Pawnbrokers, &c.	Whole of City, except Central	60	110	331
9	General and Fancy Drapers, Milliners, &c.	East of Taff Vale and Rhymney Railways	105	262	34
10	Toys or Fancy Goods	Central	106	212	27
			746	1,543	3,454

Legal proceedings taken during 1909 under the Shop Hours Act, 1904 : —

Ref. No.	Offence.	No. of Order.	Result.
2	Serving customers during prohibited hours ...	1	Fined 10/-
29	Not exhibiting notice relating to Closing Order	1	,, 2/6.
43	Serving customers during prohibited hours ...	3	Cautioned.
44	Do.	3	Fined 2/6.
46	Do.	6	Fined 5/- and costs.
49	Do.	6	Cautioned.
51	Not exhibiting notice relating to Closing Order	8	Fined 10/- and costs.
52	Do.	8	,, 5/- ,, ,,
53	Do.	3	,, 5/- ,, ,,
63	Serving customers during prohibited hours ...	6	,, £1 ,, ,,
82	Do.	3	,, £1 ,, ,,
83	Aiding and abetting in previous case	3	,, £1 ,, ,,
85	Serving customers during prohibited hours	6	,, 10/- ,, ,,
86	Not exhibiting notice relating to Closing Order	1	Cautioned
87	Do.	1	,,
100	Do.	3	To pay costs.
101	Aiding and abetting in previous case ...	3	,, ,,
103	Not exhibiting notice relating to Closing Order	3	Cautioned.

TABLE XIX.

Inspections of Shops under the Shop Hours Acts 1892 to 1899.

Nature of Shops Inspected.	Number of Inspections.	Employing Young Persons.	Employing Females.	Shops in which Seats are Provided.
Drapers	339	192	152	152
Grocers and Dairies	310	168	21	21
Butchers	207	121	3	3
Hairdressers and Tobacconists	244	124	100	100
Newsagents and Stationers	144	78	56	56
Boot Dealers	221	118	97	97
Chemists	55	37	3	3
Ironmongers and Cycle Dealers	92	38	8	8
Fruiterers and Fishmongers	245	91	43	43
Fancy Dealers and Photographers	88	49	63	63
Confectioners	241	44	83	83
Pawnbrokers, Jewellers, &c.	74	26	9	9
Saddlers	3	—	—	—
Dyers and Cleaners	12	7	8	8
Plumbers and Decorators	14	2	2	2
China Dealers	23	8	2	2
Hay and Corn Merchants, Florists and Seedsmen ...	31	7	8	8
General Dealers	103	7	4	4
Publicans and Refreshment Houses	142	17	67	67
Furniture Dealers	66	17	15	15
Totals	2,654	1151	744	744

REPORT OF THE INSPECTOR OF NUISANCES TO THE MEDICAL OFFICER OF HEALTH FOR THE YEAR 1909.

Inspection of Houses, &c. :—

Complaints of nuisances received	978
Houses and premises inspected	8,119
,, ,, re-inspected	16,854
Notices served (intimation)	4,970
,, ,, (statutory)...	150
Notices complied with	4,874
Total number of nuisances abated	7,209
Drains unchoked and repaired	1,070
Water-closets repaired	373
,, ,, cleansed	364
Flushing apparatus provided	28
,, ,, repaired	88
Water supply connected to dwellings	61
Overcrowding abated	52
Roofs repaired	840
Ventilation improved	15

Inspection of Houses, &c.—continued.

Floors and staircases repaired	538
Premises cleansed or limewashed	384
Yard or area surfaces paved or repaired	1,039
Yards or areas cleansed or limewashed	135
Offensive accumulations removed	428
Keeping of animals discontinued	15
Manure receptacles provided	41
,, ,, repaired	23
Other nuisances abated	1,715

SPECIAL INSPECTIONS :—

Drains tested	963
Drains on being tested found defective	465
Smoke observations taken...	7
Inspections of offensive trades	558

SHOPS AND STORES :—

Inspections of butchers shops	1,729
,, provision shops	371
,, markets, wholesale stores, &c.	2,595
,, fish and fruit shops	191

DAIRIES, COWSHEDS AND MILKSHOPS :—

Cowsheds registered	19
Dairies and milkshops registered	364
Inspections of cowsheds	239
,, milkshops	1,990
Notices *re* sanitary defects served	135

MORTUARY :—

Bodies removed to Mortuary (77 males and 9 females)...	86
Post-mortem examinations performed by medical practitioners	30

COMMON LODGING HOUSES :—

Common Lodging Houses registered	37
Day inspections	904
Night inspections	22
Notices served	83
Notices complied with	70

SEAMEN'S LODGING HOUSES :—

Seamen's Licensed Lodging Houses on Register	150
Licences expiring on 14th January, 1910	105
,, ,, 8th June, 1910	45
Applications for Licences considered during 1909	276
Licences granted during 1909	174
,, relinquished	23
,, revoked	1
Day inspections	3,188
Night inspections...	144
Notices served under Bye-laws	266
Notices complied with under Byelaws	259

Seamen's Lodging Houses.—continued.

Notices served under Public Health Acts		68
Notices complied with under Public Health Acts		54
Persons cautioned for lodging seamen without being licensed ..		127
Cases in which legal proceedings were taken for lodging seamen without being licensed		30
Persons fined	22	
Amount of fines	£32 10s.	
Persons to pay costs	1	
Persons cautioned	4	
Summonses withdrawn	2	
Cases adjourned	1	
Legal proceedings for overcrowding Licensed House		1
Result :—Cautioned.		

HOUSE INSPECTION.

The following Table shows the number of houses inspected (house-to-house inspection) in each municipal ward, and gives particulars of nuisances found during such inspection :—

MUNICIPAL WARDS.	Total Number of Houses Inspected.	Over-crowded.	Defective Drains	Choked Drains.	Defective W.C.'s.	Defective Traps.	Number of W.C.'s.	W.C.'s. not supplied with Water.	Defective Paving in Areas or Yards.	Dampness of Premises.	Other Nuisances
Central	829	21	16	12	25	4	876	601	108	4	574
South	216	2	4	6	10	—	239	145	20	5	394
Cathays	114	—	2	—	12	—	114	77	15	1	130
Adamsdown ...	729	4	25	2	28	10	840	664	209	5	343
Riverside	156	3	1	—	1	4	157	120	55	12	143
Canton	379	5	6	10	40	6	408	294	147	25	568
Grangetown ..	175	4	11	2	10	3	176	149	37	4	103
Roath	178	3	7	3	7	—	179	166	7	—	140
Park	656	2	10	5	20	18	682	514	89	6	357
Splott	583	2	3	4	26	1	585	478	34	3	101
Totals ...	4,015	46	85	44	179	46	4,256	3,208	721	65	2,853

The number of houses inspected given in the above table is included in the number given under " houses and premises inspected " on page 32.

SUMMARY OF LEGAL PROCEEDINGS.

Legal Proceedings.	Number of Cases.	Fines.
Under Sale of Food and Drugs Act ...	27	£71 10s. and costs.
,, Byelaws as to Seamen's Lodging Houses	30	£32 15s. ,, ,,
,, Byelaws relating to Common Lodging Houses	5	£2 0s. ,, ,,
,, Public Health Act, 1875 (Sec. 96)	26	£4 1s. ,, ,,
,, Sanitary Byelaws ...	1	5/- ,, ,,
,, Notification of Births Act	1	2/6 ,, ,,
,, Shop Hours Act, 1904	18	£5 10s. ,, ,,
Totals ...	108	£116 3s. 6d. and costs.

SAMUEL EVANS,
Inspector of Nuisances.

VITAL STATISTICS.—The statistics in this report are based upon the Registrar General's estimate of the population of Cardiff for the middle of the year 1909. This estimate is given as 195,303.

The population enumerated at the Census of 1901, amounted to 164,333 persons being an increase of 27·5 per cent. since the Census of 1891 ; the rate of increase being considerably less than that of the preceding inter-censal period, which slightly exceeded 55 per cent.

The Registrar General's method of estimating the annual populations of towns is based on the assumption that the rate of increase which had prevailed in the last completed inter-censal period has since been maintained. This method, when applied to the country as a whole, gives fairly accurate results, but when individual towns are under consideration the error may be considerable, and in that case the birth-rates and rates of mortality become more and more unreliable each succeeding year after the last Census.

The enumerated population of Cardiff at the Census of 1891 was 128,915. At the Census of 1901 it was 164,333, whereas the estimated population for that year was 200,808.

TABLE XX.

The rapid increase in the population of Cardiff is shown in the Census returns since the year 1801 as follows :—

Year	Census Population.
1801	1,870
1811	2,577
1821	3,521
1831	6,187
1841	10,077
1851	18,351
1861	32,054
1871	39,536
1881	85,371
1891	128,915
1901	164,333

TABLE XXI.

The following Table gives the population in each year since the last Census, estimated in accordance with the method adopted by the Registrar General :—

Year	Estimated Population.
1902	168,909
1903	172,598
1904	176,313
1905	180,054
1906	183,823
1907	187,620
1908	191,446
1909	195,303

There is some reason for believing that at the end of the present inter-censal period the estimate of the population will again prove too high, although not to the same extent as on the occasion alluded to. In order, therefore, to check to some extent the accuracy of the official estimate, a local enumeration is made annually in June of the inhabited houses in the district. This number is multiplied by 5·8, the average number of inmates per house, as given in the last Census. The result of this enumeration is given in Table I. This method is also to some extent fallacious, as the average number of inmates in 1909 may not correspond with that of 1901. The only satisfactory method of obtaining a more accurate estimate of the population would be by making a more frequent census enumeration. A quinquennial census would remove some of the statistical inaccuracies which are now under the present conditions unavoidable.

TABLE XXII.

The following Table gives the population of Cardiff, at various ages, estimated to the middle of 1909, in accordance with the method adopted by the Registrar General :—

AGES	PERSONS	MALES	FEMALES.
All ages	195,303	96,984	98,319
Under 5 years	24,610	12,131	12,479
5–10 years	22,503	11,260	11,243
10–15 ,,	20,219	10,081	10,138
15–20 ,,	19,283	9,325	9,958
20–25 ,,	19,330	9,083	10,247
25–30 ,,	17,873	8,806	9,067
30–35 ,,	15,581	7,876	7,705
35–40 ,,	13,890	7,101	6,789
40–45 ,,	11,344	5,985	5,359
45–50 ,,	8,754	4,595	4,159
50–55 ,,	7,072	3,626	3,446
55–60 ,,	5,153	2,611	2,542
60–65 ,,	3,929	1,923	2,006
65–70 ,,	2,644	1,200	1,444
70–75 ,,	1,701	781	920
75–80 ,,	898	390	508
80 years and upwards	519	210	309

The following is a summary of the vital statistics for the year 1909 :—

Estimated Population ... ... 195,303.

Births	5,026	Birth-rate per 1,000	25·7
Deaths	2,549	Death-rate per 1,000	13·0
Deaths from Zymotic Diseases	170	Zymotic death-rate per 1,000	0·87
Deaths under one year of age	518	Deaths under one year per 1,000 births registered	103

Causes of Death	Number of Deaths	Death-rate per 1,000
Small-Pox	1	0·00
Measles	21	0·10
Scarlet Fever	7	0·03
Diphtheria	14	0·07
Enteric Fever	7	0·03
Whooping Cough	51	0·26
Diarrhœa	69	0·35
Respiratory Diseases	439	2·24
Phthisis	234	1·19
Other Tubercular Diseases	74	0·37

TABLE XXIII.

Table showing the birth-rate, death-rate, zymotic death-rate per 1,000 persons living, and rate of infant mortality in Cardiff, compared with the rates in England and Wales during 1909, and with the rates in Cardiff during previous years :—

	Birth-rate	Death-rate	Zymotic Death-rate	Deaths under 1 year per 1,000 births Registered
England and Wales	25·6	14·5	1·12	109
76 Great Towns	25·7	14·7	1·42	118
143 Smaller Towns	24·8	13·9	1·08	111
England and Wales, less the 219 towns	25·6	14·5	0·80	98
Cardiff	25·7	13·0	0·87	103
Cardiff (10 years 1899–1908)	29·5	15·2	1·78	139

MARRIAGES.—The return of the number of marriages in the City of Cardiff during the years 1900–1909, together with the rate of persons married per 1,000 of the population, is given below :—

TABLE XXIV.

YEAR.	NUMBER OF MARRIAGES.	RATE OF PERSONS MARRIED PER 1,000 LIVING.
1900	1,706	21·1
1901	1,641	19·8
1902	1,677	19·8
1903	1,668	19·3
1904	1,563	17·7
1905	1,650	18·8
1906	1,769	19·2
1907	1,743	18·5
1908	1,759	18·3
1909	1,803	18·4

BIRTHS.—During the year 1909 the births registered in the city numbered 5,026 ; of these 2,583 were males, and 2,443 females. The number of births corresponded to an annual birth-rate of 25·7 per 1,000 persons living.

During the ten years ending 1890, the birth-rate in Cardiff averaged 41·0 per 1,000, as compared with 29·5, the average rate during 1899–1908.

TABLE XXV.

The following Table indicates the gradual and progressive decline which has taken place in the birth-rate in Cardiff during recent years.

YEAR.	NUMBER OF BIRTHS.	BIRTH-RATE PER 1,000.
1891	4,737	36·5
1892	4,789	35·0
1893	5,121	36·0
1894	5,103	34·2
1895	5,321	34·1
1896	5,591	34·3
1897	5,279	35·1
1898	5,520	35·9
1899	5,309	33·7
1900	5,198	35·2
1901	5,206	31·4
1902	5,278	31·2
1903	5,250	30·4
1904	5,208	29·5
1905	5,140	28·5
1906	5,001	27·2
1907	4,865	25·9
1908	5,172	27·0
1909	5,026	25·7

TABLE XXVI.

The following Table shows the number of legitimate and illegitimate births, male and female, and the number of deaths under one year per 1,000 births registered in each municipal ward and in the Union Workhouse during the year 1908 :—

MUNICIPAL WARDS.	Legitimate.		Illegitimate.		Totals.		Totals.	Deaths under One Year per 1000 births registered.
	Males.	Females.	Males.	Females.	Males.	Females		
Central	135	124	5	7	140	131	271	95
South	122	129	4	4	126	133	259	154
Cathays	331	303	8	5	339	308	647	78
Adamsdown	171	161	2	2	173	163	336	160
Riverside	189	190	7	7	196	197	393	89
Canton	328	342	6	4	334	346	680	101
Grangetown	374	367	9	4	383	371	754	110
Roath	238	204	2	9	240	213	453	105
Park	259	234	9	4	268	238	506	77
Splott	327	272	6	9	333	281	614	84
Union Workhouse ...	9	11	42	51	51	62	113	185
Totals ...	2,483	2,337	100	106	2,583	2,443	5,026	103

Throughout the country the birth-rate has of late years declined in a marked manner, as will be seen in the following Table.

The decline commenced about the year 1880, and has continued uninterruptedly since that date. The birth-rate in England and Wales, which averaged 35·5 per 1,000 in the period 1861—1880, fell as follows :—

TABLE XXVII.

PERIOD.	BIRTH-RATE.
1881–1885	33·5 per 1,000
1886–1890	31·4 ,,
1891–1895	30·5 ,,
1896–1900	29·3 ,,
1901	28·5 ,,
1902	28·6 ,,
1903	28·4 ,,
1904	27·9 ,,
1905	27·2 ,,
1906	27·0 ,,
1907	26·3 ,,
1908	27·0 ,,
1909	25·6 ,,

TABLE XXVIII.

Shows the annual birth-rate per 1,000 in some of the large towns in England and Wales for the 10 years 1900 to 1909 inclusive :—

LARGE TOWNS.	Annual birth-rate per 1,000 persons living									
	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
London	28·6	29·0	28·5	28·5	28·0	27·1	26·6	25·6	25·2	24·2
West Ham	28·6	35·2	34·1	33·7	32·1	30·5	30·5	28·6	28·8	27·2
Croydon	24·9	26·4	26·1	26·3	26·1	26·4	25·7	25·7	25·4	24·4
Brighton	23·6	24·2	24·3	24·3	23·5	22·9	22·3	21·1	21·3	20·5
Portsmouth	25·7	27·9	27·1	27·9	28·2	27·7	28·6	27·9	28·4	27·2
Plymouth	28·4	26·8	27·0	25·5	25·3	25·6	23·9	23·2	22·2	22·4
Bristol	27·8	27·0	27·5	27·4	26·0	26·9	25·8	24·3	23·1	22·6
Swansea	26·7	30·1	31·1	32·0	30·5	30·9	31·9	32·5	33·1	33·0
Wolverhampton	33·5	31·7	31·6	30·5	29·8	28·7	27·4	26·4	25·8	23·8
Birmingham	32·7	32·1	31·8	31·8	31·5	29·2	29·2	28·3	28·4	26·6
Norwich	28·4	28·4	27·9	27·9	27·6	27·2	26·0	25·0	25·2	24·3
Leicester	28·2	29·0	29·1	27·4	26·6	25·8	25·3	23·2	23·4	21·9
Nottingham	27·7	28·4	27·8	28·3	27·8	26·5	26·5	26.8	26·6	25·7
Derby	26·9	27·8	28·0	27·0	27·2	25·5	25·0	25·1	25·9	24·9
Birkenhead	29·0	29·0	32·7	30·8	33·1	32·0	31·8	31·2	31·4	30·9
Liverpool	36·0	32·1	22·5	33·4	33·5	33·2	32·6	31·8	31·7	31·1
Bolton	34·7	27·5	27·2	27·0	26·9	25·1	25·5	24·4	24·5	24·7
Manchester	32·3	29·1	32·8	32·1	31·3	29·4	29·0	28·7	29·1	27·8
Salford	33·1	29·2	33·8	32·2	31·7	30·5	30·2	29·2	29·6	27·9
Oldham	24·1	24·6	26·1	25·6	24·9	24·3	26·9	26·5	28·0	27·4
Burnley	25·3	27·4	29·1	27·2	27·2	26·5	27·6	28·5	28·2	25·1
Blackburn	25·1	26·5	25·6	25·1	23·5	24·0	25·6	24·8	25·0	22·9
Preston	29·0	30·4	28·9	30·4	28·2	28·1	28·5	26·8	27·7	25·7
Huddersfield	22·8	22·7	24·4	23·8	23·7	23·8	24·2	23·2	24·4	24·5
Halifax	23·1	22·5	21·3	21·1	20·1	19·2	19·2	17·4	19·0	16·5
Bradford	23·1	23·1	23·0	23·3	22·0	21·0	20·6	20·0	20·2	18·8
Leeds	30·4	30·0	29·8	29·4	28·0	27·1	26·1	24·9	24·8	22·8
Sheffield	34·2	33·0	33·4	33·2	31·9	29·7	29·9	30·9	30·7	28·2
Hull	32·9	33·0	32·1	31·3	30·8	29·8	29·6	28·8	30·2	29·4
Sunderland	35·8	35·5	35·9	35·1	34·4	34·2	34·8	34·3	33·0	29·3
Gateshead	36·3	36·8	36·7	35·8	34·4	32·7	31·9	30·7	30·9	28·7
Newcastle-on-Tyne	30·4	32·1	32·6	31·1	30·5	32·1	30·6	29·7	29·7	27·3
CARDIFF	35·2	31·4	31·2	30·5	29·5	28·5	27·2	25·9	27·0	25·7

DEATHS.—The total number of deaths registered at all ages and from all causes in the City of Cardiff during the year 1909 amounted to 2,619. This number of deaths includes non-residents who died within the district. If this number is corrected by the subtraction of non-residents who died in public institutions in Cardiff, and by the addition of residents who died in institutions beyond the district, the number is reduced to 2,549, giving an annual death-rate of 13.0 per 1,000 persons living, the lowest rate on record, and lower even than the average rate in the rural districts of England and Wales. The average death-rate in Cardiff in the ten years 1899–1908 was 15·2 per 1,000. The death-rates throughout the Country for the year 1909, as given in the Return of the Registrar General, are as follows :—

	Death-rate per 1,000
England and Wales	14·5
76 Great Towns	14·7
143 Smaller Towns	13·9
England and Wales, less the 219 towns	14·5

In the first quarter of the year 1909 the number of deaths registered in the City of Cardiff, at all ages and from all causes, was 741, corresponding to an annual death-rate of 15·2 per 1,000 persons living, as compared with 15·1, the rate in the corresponding quarter of 1908, and with 18·7 the average death-rate in the 76 large towns of England and Wales. The death-rate during this quarter ranged from 10·2 in Hornsey, 11·1 in Walthamstow, 12·6 in East Ham, 12·7 in Handsworth, 13·3 in Gateshead to 22·1 in Oldham, 22·2 in Manchester, 23·1 in Bury, 23·2 in Liverpool, 24·2 in Wigan, and 25·9 in St. Helens. Of the 741 deaths in the first quarter, 27 were attributed to the principal infectious diseases; these deaths were equal to an annual death-rate of 0·54 per 1,000, as compared with 0·80 in the corresponding quarter of 1908, and with 2·20, the average rate in the 76 large towns. The infant mortality in this quarter corresponded with a rate of 102 deaths under one year of age per 1,000 births registered, as compared with 123 in the first quarter of 1908. The rate of infant mortality in the 76 large towns in the first quarter of 1909 was 123 deaths under one year of age per 1,000 births.

In the second quarter of the year the number of deaths registered was 595, corresponding to an annual death-rate of 12·2 per 1,000 persons living, as compared with 11·8, the rate in the second quarter of 1908, and with 13·9, the average rate in the 76 large towns. The death-rate during this quarter ranged from 8·1 per 1,000 in Hornsey, 9·2 in Kings Norton, 9·3 in Leyton, 9·5 in East Ham, 9·7 in Walthamstow to 18·6 in Salford, 18·5 in Wigan, 18·6 in Wolverhampton, 19·7 in Oldham, and 20·0 in Middlesbrough. Of the 595 deaths from all causes, 42 were attributed to the principal infectious diseases; these deaths were equal to an annual death-rate of 0·86 per 1,000, as compared with 0·90 in the corresponding quarter of 1908, and with 1·3, the average rate in the 76 large towns. The infant mortality in this quarter corresponded with a rate of 87 deaths under one year of age per 1,000 births registered, as compared with 98 in the second quarter of 1908, and with 101, the average rate in the 76 large towns.

In the third quarter of the year the number of deaths registered was 537, corresponding to an annual death-rate of 11·0 per 1,000 persons living, as compared with 11·8, the rate in the corresponding quarter of 1908, and in the 76 large towns. The death-rate during the quarter ranged from 5·8 per 1,000 in Hornsey, 6·4 in Kings Norton, 7·5 in Walthamstow, 8·0 in Willesden, and 8·1 in East Ham to 15·5 in Tynemouth, 15·6 in Middlesbrough, 15·8 in Newport (Mon.), 16·3 in Liverpool, and 17·7 in Swansea. Of the 537 deaths from all causes, 73 were attributed to the principal infectious diseases; these deaths were equal to an annual death-rate of 1·50 per 1,000, as compared with 2·2, the rate in the corresponding quarter of 1908, and with 1·60, the average rate in the 76 large towns. The infant mortality in this quarter corresponded with a rate of 110 deaths under one year of age per 1,000 births registered, as compared with 158 in the third quarter of 1908, and with 120, the average rate in the 76 large towns.

In the fourth quarter of the year the number of deaths registered was 590, corresponding to an annual death-rate of 12·0 per 1,000 persons living, as compared with 12·3, the rate in the fourth quarter of 1908, and with 14·3, the average rate in the 76 large towns. The death-rate during the quarter ranged from 8·8 per 1,000 in Handsworth, 9·2 in Hornsey, 9·5 in Croydon, and 9·6 in Leyton to 19·6 in Oldham, 19·9 in Merthyr Tydfil, 22·2 in Swansea, and 22·4 in Hanley. Of the 590 deaths from all causes, 26 were attributed to the principal infectious diseases; these deaths were equal to an annual death-rate of 0·52 per 1,000, as compared with 0·70, the rate in the fourth quarter of 1908, and with 0·94, the average rate in the 76 large towns. The infant mortality in this quarter corresponded with a rate of 112 deaths under one year of age per 1,000 births registered, as compared with 121 in the fourth quarter of 1908, and with 128, the average rate in the 76 large towns.

TABLE XXIX.

The following Table gives the vital statistics in decennial periods since 1852, and shows the marked decline in the general death-rate, in the death-rate from zymotic diseases, and also in the birth-rate in successive periods :—

Years	Population	Births	Birth-rate per 1,000	Deaths	Death-rate per 1,000	Deaths from Zymotic Diseases	Zymotic Death-rate per 1,000
1852—1861 ...	25,889	1,144	44·2	756	29·2	222	8·58
1862—1871 ...	36,152	1,364	37·7	875	24·2	167	4·62
1872—1881 ...	66,639 Means.	2,433 Means.	36·5 Means.	1,335 Means.	20·0 Means.	218 Means.	3·27 Means.
1882—1891 ...	104,420	4,166	39·9	2,255	21·6	347	3·32
1892—1901 ...	148,606	5,241	35·3	2,674	18·0	355	2·39
1902	168,909	5,278	31·2	2,865	16·9	459	2·72
1903	172,598	5,250	30·4	2,496	14·4	232	1·34
1904	176,313	5,208	29·5	2,695	15·2	320	1·81
1905	180,054	5,140	28·5	2,443	13·5	216	1·14
1906	183,823	5,001	27·2	2,618	14·2	248	1·34
1907	187,620	4,865	25·9	2,819	15·0	353	1·91
1908	191,446	5,172	27·0	2,538	13·2	219	1·14
1909	195,303	5,026	25·7	2.549	13·0	170	0·87

TABLE XXX.

Showing the number of deaths and death-rates at various age periods during the last six years :—

AGES.	Number of Deaths.						Death-rate per 1,000 persons. living at each Age Group.					
	1904	1905	1906	1907	1908	1909	1904	1905	1906	1907	1908	1909
Under 5 years ...	1,031	860	904	1,026	838	720	46·4	37·9	39·0	43·4	34·7	29·2
5 to 15 ,, ...	117	102	110	98	111	92	3·0	2·6	2·7	2·3	2·6	2·1
15 ,, 25 ,, ...	130	125	135	147	127	135	3·7	3·5	3·7	3·9	3·3	3·4
25 ,, 65 ,, ...	949	906	1,006	1,008	962	1,014	12·6	11·7	12·8	12·5	11·7	12·1
65 years and upwards ...	468	450	463	540	500	588	89·9	84·5	85·3	97·5	88·5	102·1
At all ages ...	2,695	2,443	2,618	2,819	2,538	2,549	15·2	13·5	14·2	15·0	13·2	13·0

TABLE XXIX.

Death-rates from all causes per 1,000 persons living in the several municipal wards :—

	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Cardiff (Whole District) ...	16·5	16·0	16·9	14·4	15·2	13·5	14·2	15·0	13·2	13·0
Roath Ward	14·5	11·9	14·0	12·4	13·3	11·4	12·3	11·9	10·7	11·3
Park Ward	10·5	12·3	10·0	8·7	9·3	8·8	8·9	9·9	8·9	8·9
Splott ,, ...	14·7	13·3	15·7	11·2	15·0	12·5	13·9	13·7	13·2	10·7
Central ,, ...	16·3	17·3	17·4	15·0	14·2	14·0	14·4	15·2	12·8	13·0
South ,, ...	15·7	16·7	15·6	15·3	15·2	13·0	16·4	17·1	15·4	14·3
Cathays ,, ...	11·3	11·8	13·5	9·8	11·1	10·1	11·2	11·1	10·0	9·3
Adamsdown Ward	15·7	16·1	20·1	16·1	15·5	17·6	17·2	20·3	15·7	17·2
Riverside ,, ...	9·1	11·0	11·9	14·3	11·3	9·4	9·2	10·1	10·7	10·8
Canton ,, ...	11·1	13·9	12·1	10·7	12·0	9·8	9·9	10·4	10·3	10·0
Grangetown ,, ...	15·5	14·6	15·7	13·6	15·2	14·3	14·4	17·0	14·0	14·0

TABLE XXXII.

Shows the annual death-rates per 1,000 in some of the large towns in England and Wales for the 10 years 1900—1909 inclusive :—

LARGE TOWNS.	Annual death-rate per 1,000 persons living.									
	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
London	18·8	17·6	17·7	15·7	16·1	15·6	15·7	14·6	13·8	14·0
West Ham	15·9	18·0	17·1	15·3	16·7	15·5	15·3	14·6	13·9	14·0
Croydon	14·6	12·9	14·0	11·8	13·8	12·7	13·4	12·4	12·8	11·7
Brighton	17·8	16·5	15·8	14·3	16·6	10·9	14·4	14·7	14·7	15·3
Portsmouth	17·3	17·9	16·8	14·7	16·8	16·6	14·8	16·0	13·8	14·2
Plymouth	20·8	17·9	17·0	16·5	18·7	16·8	16·4	14·7	15·0	14·5
Bristol	16·7	16·0	17·4	14·3	15·4	14·7	14·3	13·2	13·6	12·7
Swansea	17·1	18·6	16·1	18·6	17·7	16·5	17·9	17·9	18·5	19·4
Wolverhampton	22·5	16·9	16·4	15·5	14·6	14·8	14·7	15·1	14·3	16·0
Birmingham	21·5	20·5	18·6	17·8	19·3	16·1	16·7	16·2	15·9	15·4
Norwich	17·6	18·7	16·7	15·2	18·2	16·5	16·7	14·6	14·1	13·9
Leicester	17·4	15·9	14·9	14·2	14·5	13·4	14·4	12·7	13·0	12·9
Nottingham	19·1	18·5	16·9	16·9	17·5	16·6	16·0	17·5	15·2	16·3
Derby	17·5	15·2	13·9	13·6	15·1	15·0	14·0	14·3	13·1	13·4
Birkenhead...	16·8	18·7	17·7	16·8	19·8	15·3	17·7	15·4	15·8	15·9
Liverpool	25·7	22·3	22·5	20·5	21·9	19·2	20·3	19·0	19·2	19·0
Bolton	19·5	18·2	16·9	17·5	16·9	15·4	15·5	16·8	15·4	15·1
Manchester	24·1	22·1	20·0	19·7	21·3	18·0	19·0	18·1	18·2	17·9
Salford	25·1	21·7	19·3	19·0	21·0	17·1	18·5	17·7	17·8	18·0
Oldham	19·6	19·6	19·1	18·6	18·3	18·8	18·8	19·4	19·8	19·1
Burnley	16·3	19·0	19·5	19·2	20·0	16·5	19·7	17·6	17·9	16·1
Blackburn	20·5	19·5	16·9	15·7	17·2	16·4	16·4	16·9	15·7	16·3
Preston	24·0	21·0	19·1	18·7	17·8	16·4	19·2	19·1	18·0	15·8
Huddersfield	16·6	16·7	17·8	16·7	17·5	16·9	17·3	16·9	17·1	16·3
Halifax	18·1	16·4	15·7	15·0	15·5	15·3	15·5	14·3	14·1	13·9
Bradford	16·4	16·8	15·8	16·4	17·5	15·1	16·1	14·8	15·5	14·5
Leeds	20·0	19·3	17·6	16·6	17·9	15·3	15·8	15·3	15·3	14.1
Sheffield	22·6	20·4	17·1	18·6	16·8	17·0	16·7	17·1	15·8	15·1
Hull	19·7	18·6	17·2	16·9	18·0	16·0	17·0	16·1	16·2	14·9
Sunderland	21·4	21·4	19·5	19·9	19·4	18·6	18·5	19·2	17·7	16·9
Gateshead	19·0	21·6	17·7	16·7	18·5	15·5	16·4	15·4	14·9	12·7
Newcastle-on-Tyne	19·5	21·9	19·9	19·2	19·4	16·8	17·1	15·9	16·0	14·8
CARDIFF	16·5	15·7	16·9	14·4	15·2	13·5	14·2	15·0	13·2	13·0

Chart A.

SHOWING THE WEEKLY NUMBER OF DEATHS FROM ALL CAUSES, AND FROM ZYMOTIC DISEASES, RESPIRATORY DISEASES AND PHTHISIS IN CARDIFF DURING THE YEAR 1909.

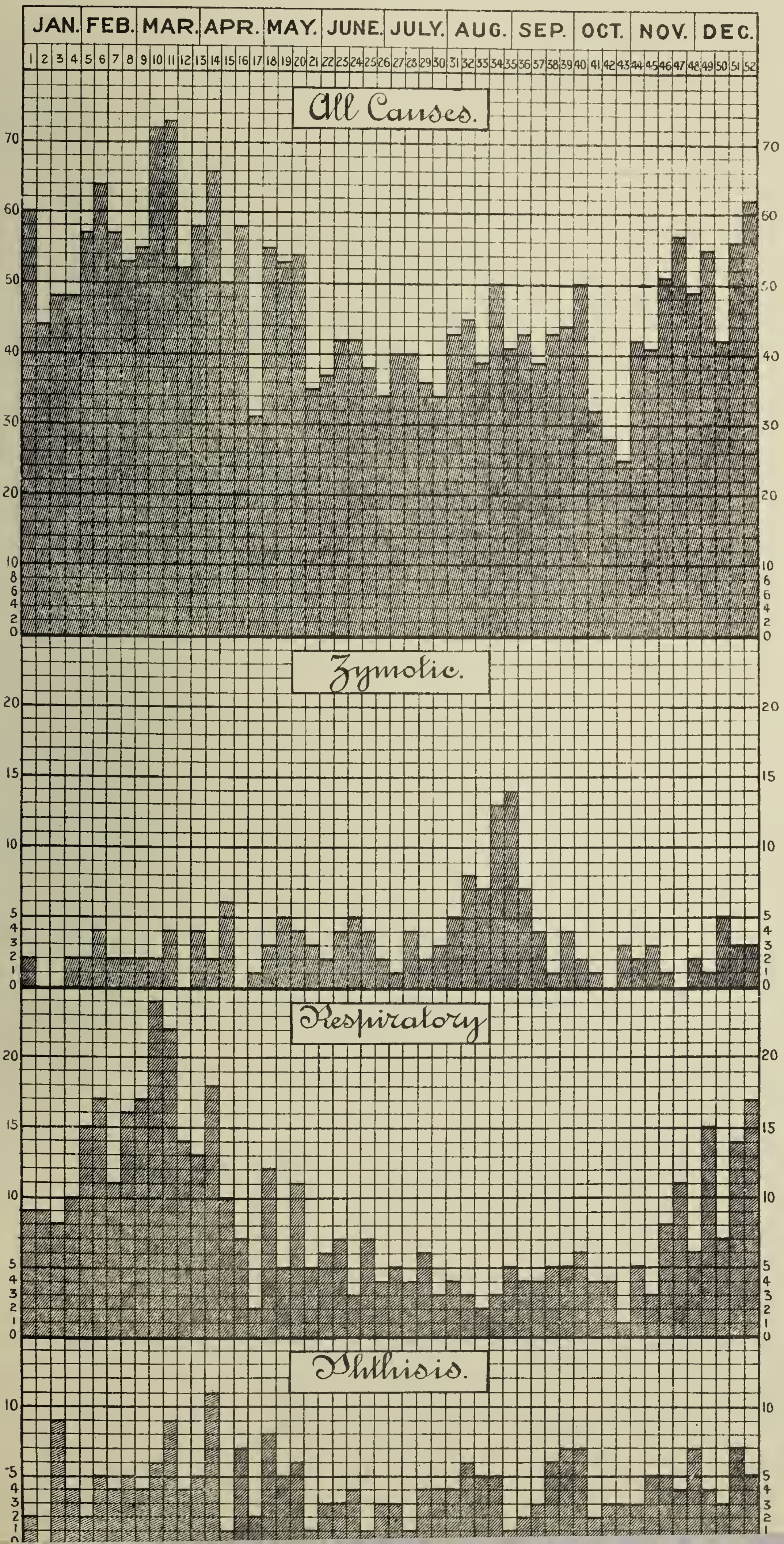


TABLE XXXIII.—Analysis of Births and Deaths in the City of Cardiff, in Registration Sub-Districts, and in Municipal Wards, during the year 1909.

LOCALITIES	*Population	Area in Acres (Land and Inland Water)	Persons per Acre	Total Births	Birth-rate	Total Deaths	Death-rate	Deaths under one Year per 1,000 Births registered	Principal Zymotic Diseases		Principal Zymotic Diseases.														Tabes Mesenterica Tubercular Meningitis, and other forms of Tuberculosis		Phthisis		Diseases of Respiratory Organs.	
											Small-pox		Measles		Scarlet Fever		Whooping Cough		Diphtheria		Typhoid Fever		Diarrhœa							
									Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate
City of Cardiff	195,303	6,373	30	5,026	25·7	2,549	13·0	103	170	0·87	1	0·00	21	0·10	7	0·03	51	0·26	14	0·07	7	0·03	69	0·35	74	0·37	234	1·19	439	2·24
East Cardiff Registration Sub-District.																														
Roath Ward	17,562	...	...	453	25·7	199	11·3	105	14	0·79	...	...	1	0·05	...	...	9	0·51	1	0·05	1	0·05	2	0·11	4	0·22	17	0·96	38	2·16
Park Ward	26,251	...	...	506	19·2	236	8·9	77	2	0·07	...	...	...	...	...	...	1	0·03	...	...	...	...	1	0·03	8	0·30	25	0·95	46	1·75
Splott Ward	17,284	...	...	614	35·5	186	10·7	84	23	1·33	...	...	1	0·05	1	0·05	9	0·52	3	0·17	...	...	9	0·52	3	0·17	12	0·69	39	2·25
East Cardiff	61,097	481	127	1,573	25·7	621	10·1	88	39	0· 3	...	...	2	0·03	1	0·01	19	0·31	4	0·06	1	0·01	12	0·19	15	0·24	54	0·88	123	2·01
Central Cardiff Registration Sub-District.																														
Central Ward ...	11,011	...	...	271	24·6	144	13·0	96	6	0·54	...	...	1	0·09	...	...	3	0·27	.	...	...	...	2	0·18	4	0·36	9	0·81	16	1·45
South Ward	9,993	...	...	259	25·9	143	14·3	154	14	1·40	...	...	...	...	...	...	5	0·50	...	...	...	...	9	0·90	3	0·30	14	1·40	17	1·70
Cathays Ward ...	23,342	...	...	647	27·7	218	9·3	78	7	0·29	...	...	1	0·04	1	0·04	1	0·04	...	...	1	0·04	3	0·12	7	0·29	17	0·72	31	1·32
Adamsdown Ward ...	11,924	...	...	336	28·1	206	17·2	160	15	1·25	...	...	...	...	...	...	6	0·50	...		...	...	9	0·75	9	0·75	17	1·42	33	2·76
Central Cardiff	56,270	3,832	14	1,513	26·8	711	12·6	113	42	0·74	...	...	2	0·03	1	0·01	15	0·26	.	...	1	0·01	23	0·40	23	0·40	57	1·01	97	1·72
West Cardiff Registration Sub-District.																														
Riverside Ward ...	18,235	...	...	393	21·5	198	10·8	89	11	0·60	...	...	1	0·05	...	...	2	0·10	2	0·10	...	...	6	0·32	5	0·27	11	0·60	41	2·24
Canton Ward ...	25,259	...	...	680	26·9	254	10·0	101	17	0·67	...	...	...	...	...	...	6	0·23	...	...	2	0·07	9	0·35	6	0·23	25	0·98	45	1·78
Grangetown Ward ...	20,103	...	...	754	37·5	282	14·0	110	36	1·79	...	...	8	0·39	1	0·04	9	0·44	3	0·14	...	...	15	0·74	5	0·24	22	1·09	49	2·43
West Cardiff	63,597	2,060	30	1,827	28·7	734	11·5	102	64	1·00	...	...	9	0·14	1	0·01	17	0·26	5	0·07	2	0·03	30	0·47	16	0·25	58	0·91	135	2·12
Infectious Diseases Hospital ...	162	...	...	...	...	13	...	...	12	...	1	...	...	...	4	...	...	...	4	...	3	...	...	...	...	...	...	...	1	...
Union Workhouse	880	...	...	113	...	375	...	...	12	...	...	...	8	...	...	...	...	...	1	...	...	...	3	...	16	...	65	...	72	...
Cardiff Infirmary	175	...	...	...	...	87	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	...	...	...	7	...
Royal Hamadryad Seamen's Hospital	49	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...

* The population of the whole City is that given by the Registrar General. The population of the Registration Sub-Districts and Municipal Wards is estimated on the basis of the number of inhabited houses in June, 1909, and the population of the Institutions is that given at the Census of 1901.

INFANT MORTALITY.—The rate of infant mortality in Cardiff in the year 1909, calculated in the proportion of deaths under one year of age to 1,000 births registered, was at the rate of 103, compared with 124 in the year 1908, and with 139, the average rate for the ten years 1899–1908.

Rates of infant mortality throughout the country, as compared with that of Cardiff during 1909 :—

	Deaths under 1 year per 1,000 births.
England and Wales	109
76 Great Towns	118
142 Smaller Towns	111
England and Wales less 218 towns	98
CARDIFF	103

TABLE XXXIV.

From the following Table it will be seen that the rate of infant mortality in Cardiff compares favourably with that in the large towns :—

	Large Towns.	Cardiff.
Year.	Deaths under 1 year per 1,000 births.	Deaths under 1 year per 1,000 births.
1881—1890	162	165
1891—1900	172	161
1901	168	148
1902	145	145
1903	144	122
1904	160	144
1905	160	118
1906	145	134
1907	127	131
1908	128	124
1909	118	103

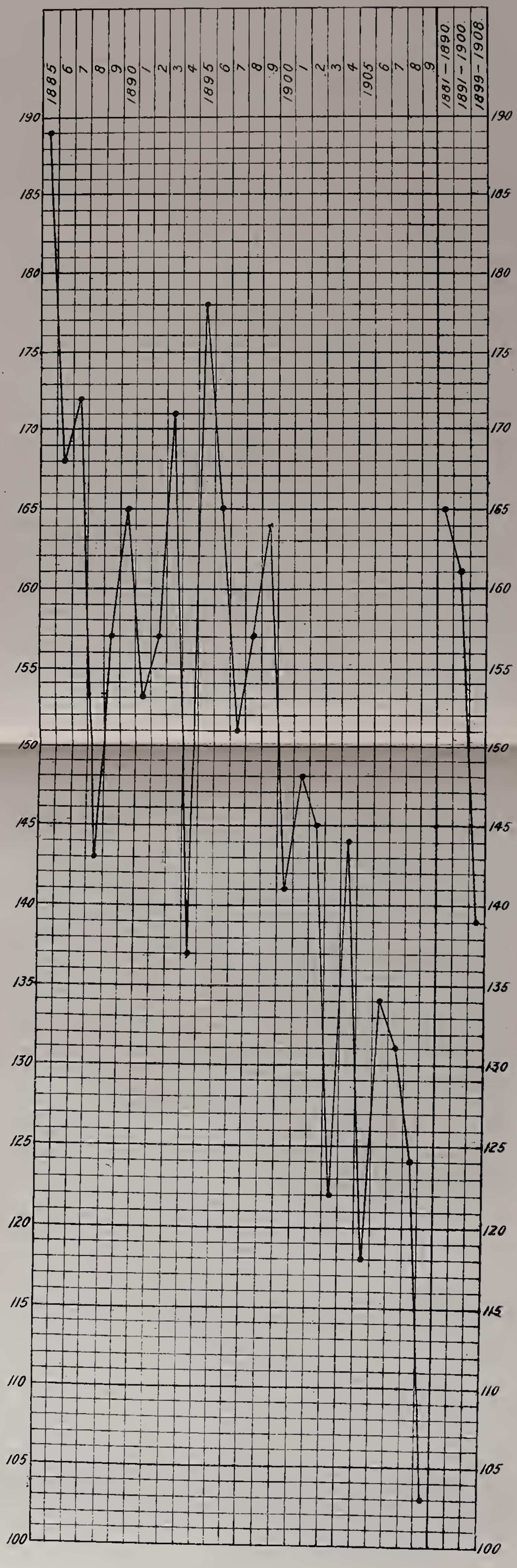
TABLE XXXV.

The following Table shows the rate of infant mortality in England and Wales since 1876.

Years.	Deaths under 1 year per 1,000 births.
1876—1880	144
1881—1885	138
1886—1890	145
1891—1895	150
1896—1900	156
1901	151
1902	133
1903	132
1904	146
1905	146
1906	133
1907	118
1908	121
1909	109

Chart B.

DEATHS UNDER ONE YEAR PER 1000 BIRTHS.
CARDIFF 1881 – 1909.



From the foregoing tables it will be seen that comparing the rates of infant mortality in the two periods 1881–90, and 1891–1900, an actual increase is shown in the later decennium, both in England and Wales as a whole and in the large towns. In Cardiff a slight decrease in the mortality is shown in the later period. Since the year 1900 there has been a steady, although not a very considerable decline in this mortality throughout the country. The rate of infant mortality in Cardiff in 1909 was the lowest recorded in this town since the first publication of vital statistics.

TABLE XXXVI.

The following table shows the rate of infant mortality in the several municipal wards, and indicates by underline the wards in which the mortality has been the highest in each year.

	Deaths under one year per 1,000 births.									
	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Cardiff (Whole District) ...	140	148	145	122	144	118	134	131	124	103
Roath Ward	183	128	146	133	123	104	114	121	115	105
Park ,, ...	102	129	129	93	120	70	98	95	97	77
Splott ,, ...	120	147	153	129	163	144	146	135	130	84
Central ,, ...	211	215	155	114	164	129	211	180	135	96
South ,, ...	156	181	166	190	173	135	159	176	140	154
Cathays ,, ...	134	125	120	104	110	95	99	107	99	78
Adamsdown Ward	137	171	153	146	142	149	153	134	114	160
Riverside ,, ...	132	234	112	109	135	112	110	109	128	89
Canton ,, ...	116	133	143	101	134	105	118	102	127	101
Grangetown ,, ...	159	133	161	122	170	134	151	159	133	110

TABLE XXXVII.

The chief causes of death amongst infants under one year of age in Cardiff during the years 1905–1909, are shown in the following table.

Causes of Death.	Deaths under one year of age.				
	1905	1906	1907	1908	1909
Premature Birth ...	74	87	95	113	89
Diarrhœa ...	52	117	53	105	52
Pneumonia	56	44	83	46	42
Bronchitis ...	43	59	54	30	33
Whooping Cough ...	18	41	30	25	30
Enteritis ...	24	30	27	36	25
Tuberculosis	38	42	22	29	22
Atrophy and Debility ...	75	83	86	80	61
Convulsions	64	47	47	52	55
Measles ...	19	...	35	2	7
Congenital Defects ...	20	18	11	18	26

It will be seen that during the year 1909 there was a decrease in the number of deaths from premature birth, diarrhœa, pneumonia, enteritis, tuberculosis, and atrophy. Nearly all the deaths attributed to premature birth and to congenital defects, and about half of those due to atrophy and debility and to convulsions, occurred amongst infants under one month of age, whilst the deaths from diarrhœa, enteritis, whooping cough, pneumonia, and bronchitis were chiefly amongst those in the later months of the first year of life.

As usual the fatal form of diarrhœa amongst infants was confined to the summer months. The incidence of the fatality from this disease at age periods under one year of age is shown in Chart C.

Of the 518 deaths from all causes under one year in the year 1909, 186, or 35 per cent. were amongst children under one month of age, and of these deaths, 65 per cent. took place during the first week of life, and were for the most part attributed to premature birth, congenital defects, atrophy and debility, and to convulsions, a group of conditions due in all probability to ante-natal causes, depending upon the state of health of the mother during pregnancy. The number of the deaths of these very young infants who come into the world prematurely with little chance of survival shows a tendency to increase during recent years. It is probable, however, that this increase is more apparent than real, owing to the greater accuracy of certification and registration since the adoption and enforcement of the Midwives Act, 1902, and the Notification of Births Act, 1907, legislation which has led to the certification of the deaths of a large number of infants who lived but a very short time, and which would under former conditions have been classed amongst the unregistered births.

TABLE XXXVIII.

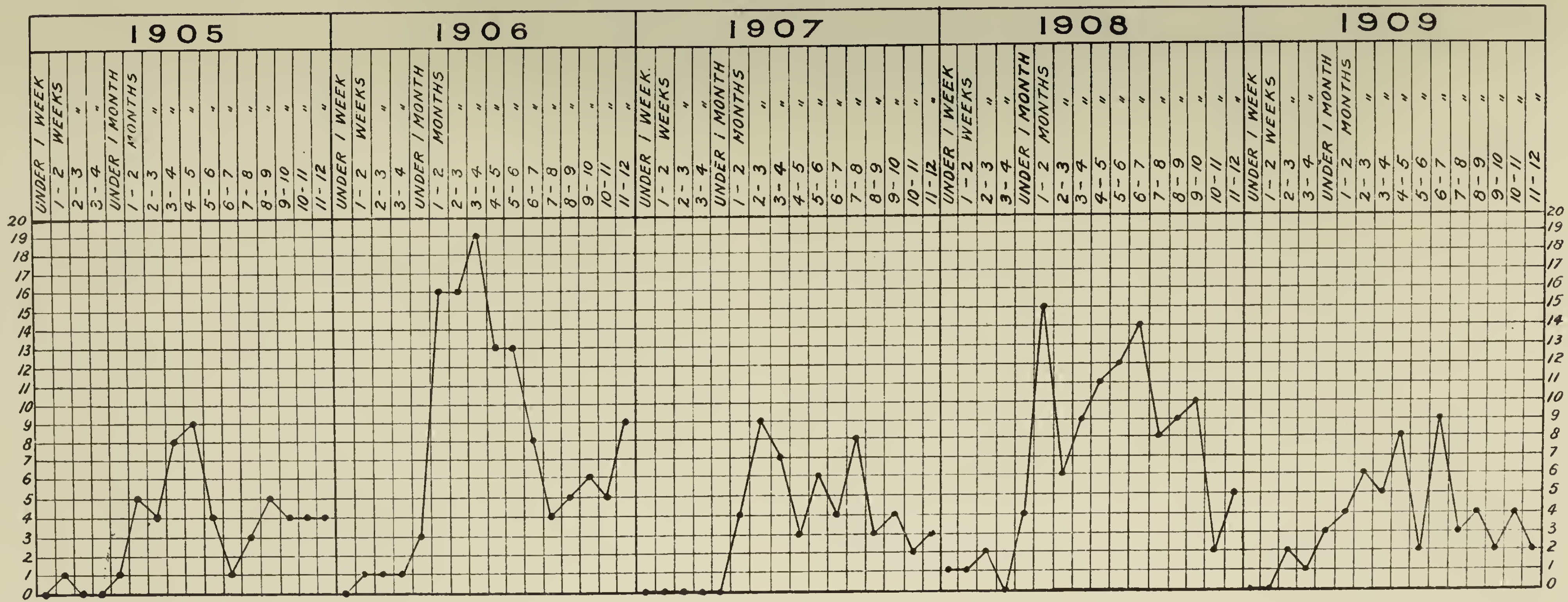
The following table indicates the difference between the mortality of legitimate and illegitimate infants :—

Year.	Births.		Percentage of illegitimate to total births	Deaths under 1 year.		Deaths under one year per 1,000 births registered.		
	Total	Illegitimate		Total	Illegitimate	Total	Legitimate	Illegitimate
1905	5,140	164	3·2	607	50	118	112	305
1906	5,001	172	3·4	675	59	134	127	343
1907	4,865	146	3·0	639	51	131	124	349
1908	5,172	193	3·7	644	63	124	116	326
1909	5,026	206	4·0	518	52	103	96	252

The comparatively high rate of mortality amongst illegitimate infants must be largely attributed to their unfavourable social position and surroundings, and to unsuitable food, most of them being artificially fed. Of the 518 deaths under one year of age from all causes during the year 1909, 52

Chart C.

DEATHS FROM DIARRHOEA AT AGE PERIODS. CARDIFF 1905 – 1909.



Average mortality from Diarrhoea
at ages per 1000 births.

Under 3 months	3 ·7 per 1000.
3 - 6 months	5 ·1 " "
6 - 9 "	3 ·5 " "
9 - 12 "	2 ·6 " "

were registered as due to diarrhœa, including in this term the deaths from epidemic diarrhœa, epidemic enteritis, infective enteritis, zymotic enteritis, summer diarrhœa, dysentery, dysenteric diarrhœa and choleraic diarrhœa.

The variations in the temperature and rainfall of the summer months are responsible for the fluctuations in the annual mortality from diarrhœa. A hot and dry summer being invariably associated with a high rate of mortality, and a cool and wet summer with a low rate. The conditions which prevailed in the summer, and especially in August, of 1909, were therefore favourable to the public health in this respect, and an unusually small number of deaths were registered from diarrhœa in all its forms.

In dealing with the relation between temperature and summer diarrhœa, two elements have to be taken into consideration.—(1) The temperature of the air calculated in terms of the mean temperature in the shade. (2) The temperature of the ground or soil. Dr. Ballard, some years ago (1889), called attention to the relation between the temperature of the ground and diarrhœal diseases. He came to the conclusion that epidemic diarrhœa amongst infants in the summer months was caused by some micro-organism growing in the soil at a temperature exceeding 56° F., *i.e.*, that the summer rise of diarrhœal mortality does not commence until the mean temperature recorded by the 4ft. earth thermometer has attained somewhere about 56° F., no matter what may have been the temperature previously attained by the atmosphere or recorded by the 1ft. thermometer. Since that date many distinguished epidemiologists and bacteriologists have investigated the etiology of this disease, and doubts have been expressed as to whether any significance should be attached to this relation pointed out by Ballard. However this may be, it will be observed that the earth thermometer at times rises to this temperature in the month of June without any apparent influence upon the diarrhœal mortality. In my experience the rise in the rate of this mortality never commences until about the end of July, whatever may have been the temperature of the earth immediately preceding that period. In this connection it may be of interest to refer to Chart D, which shows that some relation also exists between the rise in the mortality from infantile diarrhœa and the relative positions of the 1ft. and 4ft. earth thermometers.

It will be seen that from October to May, the curve of the 1ft. thermometer is below that of the 4ft. thermometer, whilst from May to October it stands above it. This alteration in the position of the curves being of course due to the effect of solar radiation upon the superficial layers of the soil during the summer months ; such changes being necessarily accompanied by variations in the atmospheric pressure in these layers. The complex meteorological conditions which prevail during the summer months, whether affecting the soil or the air, are therefore obviously associated with the development of the infective bacteria of epidemic diarrhœa. The Chart also shows the relation between rainfall and diarrhœal mortality, and it will be seen that generally the years with a heavy rainfull in the summer show a low rate of diarrhœal mortality. The influence of rain is probably due to the cooling and cleansing effect which it has upon the soil and the air, and upon filthy accumulations of all kinds.

Notwithstanding the valuable work carried out by recent investigations, our knowledge of the bacteriology of diarrhœa is still incomplete, but we may assume that the disease is caused by a specific organism or perhaps by several varieties of organisms, which in some way gain access to the chief article of food of artificially fed infants, *i.e.*, cow's milk. Delepine inclines to the opinion that the disease is due to some form of bacillus of the Colon group, and that the milk is usually infected at the farm or cowshed, and that the poison may be conveyed by flies to the milk. It would seem equally probable that the infective material should be conveyed by flies and other insects to the uncovered milk jug in the hot kitchen ; possibly in many cases a double infection may occur. In any case it is of the utmost importance to protect cow's milk from contamination from the time it leaves the cow until it is consumed by the infant.

Notification of Births Act, 1907.—This Act which was adopted by the Cardiff City Council in the year 1908, and came into force on the 13th April of that year, affords a useful means of reducing the mortality amongst infants.

It provides for the notification to the Medical Officer of Health of every birth within the City by the father, if residing in the house where the birth takes place, and by any person in attendance upon the mother at the time of, or within six hours after, the birth. Notice under this provision must be given to the Medical Officer of Health within thirty-six hours after the birth.

The following table gives the number of births notified in each quarter of the year 1909 —

	NUMBER OF BIRTHS NOTIFIED.
First Quarter ...	1,264
Second Quarter ...	1,265
Third Quarter ...	1,142
Fourth Quarter ...	1,248
Total	4,919

The number of births registered within the City in 1909 was 5,026. It will be seen, therefore, that 97 per cent. of them were notified. Of the 4,919 notified, 4,458, or 90 per cent., were notified by midwives. The number (4,919) includes 224 still-births.

The Health Visitors, Mrs. Huntley and Miss Wade, make a daily list of births in selected districts, and visit each house in these districts in which a birth has taken place. The first visit is made as soon after the birth as possible, and in most cases the house is revisited from time to time during the first year of the child's life. Altogether 3,955 visits, and 3,068 revisits were paid. At these visits printed and verbal instructions and advice are given to the mothers relating to the feeding and rearing of their children. The reception met with by the Health Visitors has been encouraging, and it is clear that their presence is appreciated on these occasions.

During the year these methods have been extended in a direction which promises good results. With the co-operation of several philanthropic persons, six centres have been established in suitable parts of the town, to which mothers are invited to bring their infants. These centres are under the immediate supervision of Dr. Elizabeth F. Elder, who is assisted by the Health Visitors. The infants are weighed at each visit, and their progress is recorded upon charts given to the mothers, copies being retained by the Doctor. In this way the interest of the mother is maintained and a regular attendance encouraged. Mothers are of course advised to feed their infants at the breast, but where this is impossible, detailed instruction is given as to the best and most suitable way of administering and preparing the artificial food. At the same time they are taught some simple rules of domestic hygiene and helped in every possible way. Although these centres have been established but a short time, already over one hundred infants have been kept under observation. Dr. Elder and the Health Visitors are therefore rendering valuable service in connection with this branch of Public Health administration, which is likely to result in a still further reduction of the infant mortality of the district, and in a general improvement in the home life and environment of the most helpless portion of the community.

An attempt has been made to imitate in a small and modest way those "Consultations de Nourrissons," which have been established for many years past in France, and in other parts of the Continent of Europe, with the object of reducing the high rate of infant mortality which formerly prevailed in these countries.

In connection with these "Consultations," it has been usual to establish a milk distributing centre or depot, from which the infants under medical supervision are supplied with sterilized milk in bottles. Generally the arrangements at these depots are as follows :—

Each infant has for its sole use two numbered sets of baskets and bottles. The mother receives every day one basket containing a number of bottles, corresponding to the number of meals the infant takes during the twenty-four hours, *i.e.*, nine—six for the day and three for the night. Each bottle contains a sufficient quantity of milk for one meal and no more, and the quantity is suited to the age of the child.

No attempt has yet been made to establish a Milk Depot or Distributing Centre in Cardiff. It is obvious that milk can hardly be supplied to infants under the best possible conditions unless something of this kind is done, and not then unless a complete supervision is exercised over the milk from the time it leaves the cow until it is delivered at the centre. In Copenhagen and other places these milk distributing centres have been carried on with success and with advantage to the community by large companies on a sound financial basis. In France philanthropic effort has had much to do with their success.

The following recommendations were made by the Medical Officer of Health in a special report upon infantile mortality in 1907 :—

(1) The education of mothers with respect to the feeding and rearing of infants by means of domiciliary visits by Lady Health Visitors.

(2) The better control and supervision of milk supplied to infants artificially fed.

(3) Special attention to the cleansing of streets and flushing of street gullies, reducing as far as possible the nuisance caused by dust in roads and streets.

(4) The insertion of clauses in a Local Act of Parliament, giving more complete control of the milk supply.

Recommendation No. 1. has been carried into effect since the date of the report, and the methods adopted have quite recently been extended by the establishment of six centres as "Consultations for Infants."

No. 3.—The application of dust laying preparations to the macadamized roads in the form of tar spraying has much reduced the dust nuisance.

No. 2 and 4.—Special attention has been paid to the milk supply of the town. Printed instructions have been issued to milk dealers, as below. A conference with representatives of the Great Western Railway was held during the year, at which the Company agreed to prohibit the mixing and transference of milk in churns at the approach to the Railway Station. A Local Act of Parliament, the Cardiff Corporation Act, 1909, which became law in August of that year, conferred special powers upon the Sanitary Authority and their officers for controlling and supervising milk supplies. The instructions to milk dealers are as follows :—

TO DAIRYMEN AND MILKSELLERS.

The attention of Milk Dealers is hereby drawn to the necessity of protecting milk from the access of dust, since it may be assumed that the air of the City always contains injurious particles. Especially is this the case when milk is retailed in small shops containing any other articles for sale. The danger is also very great when milk is sold from open cans in windy weather.

Diseases such as Scarlet Fever are liable to be conveyed by milk when it is freely exposed to dust from the persons of people recovering from Scarlet Fever, and have been propagated when the persons handling the milk have themselves been recovering from infectious illness.

It is necessary that cans should be kept covered in such a way as to exclude infective particles except when milk is being removed for sale.

Your attention is drawn, therefore, to the following clauses of the Regulations in force in Cardiff relating to Dairies, Cowsheds, and Milkshops :—

Cleanliness of Milk Stores and Milk-Shops

"Every occupier of a milk-store or milkshop shall cause every part of the interior of such milk-store or milkshop to be thoroughly cleansed from time to time as often as may be necessary to maintain such milk-store or milkshop in a thorough state of cleanliness."

For prescribing precautions to be taken by Purveyors of milk and Persons selling milk by retail against infection or contamination.

"Every purveyor of milk or person selling milk by retail shall take all reasonable and proper precautions, in and in connection with the storage and distribution of the milk, and otherwise, to prevent the exposure of the milk to any infection or contamination."

"He shall not deposit or keep any milk intended for sale in any room or place where it would be liable to become infected or contaminated by impure air, or by any offensive, noxious, or deleterious gas or substance, or by any noxious or injurious emanation, exhalation, or effluvium."

"He shall not keep milk for sale, or cause or suffer any such milk to be placed, in any vessel, receptacle or utensil which is not thoroughly clean."

"He shall cause every vessel containing milk for sale to be kept properly covered, or the milk contained in such vessel to be otherwise sufficiently protected from contamination by dirt or flies."

"He shall cause every vessel, receptacle, or utensil used by him for containing or measuring milk for sale or for its delivery at the houses of customers to be thoroughly cleansed with steam or clean boiling water after it shall have been used, and to be maintained in a constant state of cleanliness."

Any offence against the above-mentioned Regulations renders the offender liable to a penalty of £5.

Your attention is also drawn to the following recommendation of the Departmental Committee on Preservatives in Food:—

"That the use of any preservative or colouring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drugs Acts."

Under these circumstances the Sanitary Authority will take action under the Sale of Food and Drugs Acts in instances where preservatives, such as Boracic Acid, Formalin, etc., are reported in milk.

The Cardiff Corporation Act, 1909, contains what are known as the Model Milk Clauses, the most important provisions of which are to the following effect :—

(*a*) A penalty can be imposed upon any person knowingly selling milk of any cow suffering from tuberculosis of the udder, and upon any cowkeeper failing to isolate any cow so suffering.

(*b*) Dairymen are required to notify to the Medical Officer of Health the fact that they have in their dairy any cow affected with or suspected of tuberculosis of the udder.

(*c*) Power is conferred upon the Medical Officer of Health to take samples of milk, either within or outside the city, for the purpose of examination.

(*d*) Power is given to the Medical Officer of Health and to the Veterinary Surgeon to inspect cows and to take samples of milk if tuberculosis of the udder is suspected. This provision applies both within and without the City.

(*e*) In the event of the Medical Officer of Health suspecting that tuberculosis is caused or is likely to be caused to any person residing in the City from the consumption of milk, he is required to report to that effect to the Sanitary Authority, who may serve notice upon the dairyman supplying the suspected milk to appear before them and to show cause why an order should not be made prohibiting him from supplying milk within the City from his dairy.

Chart D.

SHOWING THE RELATION BETWEEN EARTH TEMPERATURES, TEMPERATURE OF THE AIR, RAINFALL, AND DIARRHOEA MORTALITY.

Midwives Act, 1902.—This Act came into operation on the 1st April, 1903, when the Cardiff Corporation was constituted the Local Supervising Authority. Under the provisions of Section 8 of the Act, the Local Supervising Authority delegated to the Health and Port Sanitary Committee all the powers and duties conferred or imposed upon them, and appointed the Medical Officer of Health the Executive Officer.

The Act aims at the better education of midwives, and provision is made for the certification and enrolment of women qualified to act in that capacity. The Act and the Rules of the Central Midwives Board also give control and supervision over the certified midwives practising in the district of the Local Supervising Authority. The Act further contains a provision that after 1st April, 1910, no woman shall habitually and for gain attend women in child-birth, otherwise than under the direction of a qualified medical practitioner, unless she be certified under this Act.

A course of training has been established at the University College of South Wales and Monmouthshire in Cardiff, for those who intend to present themselves for the Board's examination. The instruction is given by Dr. E. J. Maclean, who informs me that during the year ended 31st December, 1909, eighty-seven pupil midwives attended the course, thirty-five of whom resided in Cardiff. The Cardiff City Council and the Glamorgan County Council contribute towards the expenses of this course, and have the privilege of nominating women for free studentships in midwifery. Twelve such studentships are awarded annually to women residing in the City of Cardiff. The Committee of the Queen's Nursing Institute have established a Maternity department, and take pupils for the practical training of midwives. Pupils residing in Cardiff may also obtain their practical training from medical men practising in the district and from four certified midwives, recognised by the Central Midwives Board. Practical training can also be obtained by the resident nurses at the Cardiff Union Infirmary.

Some difficulty has occasionally arisen in securing medical aid for poor women attended by midwives, as the Act makes no provision for the payment of medical practitioners called in upon the advice of the midwife. The attention of the Guardians was therefore called to the circular letter of the Local Government Board, in which they were reminded of their power to pay for medical assistance rendered in cases of midwifery without an order from the Relieving Officer.

The supervision of the practice of midwives has been carried out efficiently by Mrs. L. Huntley, the Inspector appointed by the Local Supervising Authority, who is a certified midwife, holding the Licence of the Obstetrical Society.

The following tables give information relating to the work of the Inspector of Midwives —

Number of Midwives on Roll for 1909	119.

CERTIFIED MIDWIVES AND THEIR QUALIFICATIONS.

Bona Fide	77
Obstetrical Society of London	12
Examination of Central Midwives' Board	30
Total	119

Stillbirths notified by Midwives	224
Deaths of Midwives	3
Midwives Suspended from Practice	2
Cases of Puerperal Fever attended by Midwives	2

Certified Midwives	Case Books	Record Books	Washable Dresses	Bags	Appliances (Complete)	Appliances (Part)
93	93	93	93	93	93	—
19	19	19	19	19	—	19
1	1	—	1	1	—	1
1	1	—	1	—	—	1
5	—	—	5	—	—	5.
119	114	112	119	113	93	26

RECORDS OF SENDING FOR MEDICAL HELP.

(1) In Case of Mother—

Abortion	3
Delay in Labour	35
Presentation wrong or not defined	24
Ante Partum Haemorrhage	15
Post Partum ,,	4
Retained Placenta	17
Ruptured Perineum	18
Pyrexia	1
Small Pelvis	10
Growth on Cervix	4
Placenta Praevia	2
Illness of Mother	14
Total	147

(2) In Case of Child :—

Feebleness of Child	17
Death	1
Deformity	2
Stillbirths	5
Large child	7
Discharging Eyes	2
Total	34

INFECTIOUS DISEASES.—The 2,549 deaths from all causes included 170 from the principal infectious diseases. This number was equal to an inclusive death-rate from these diseases of 0·87 per 1,000 persons living, as compared with 1·14 per 1,000, the rate in 1908, and with 1·78, the average rate in the ten years 1899–1908.

The death-rate from zymotic diseases in England and Wales in 1909 was as follows :—

	DEATH-RATE PER 1,000.
England and Wales	1·12
76 Great Towns	1·42
143 Smaller Towns	1·08
England and Wales, less the 219 towns	0·80
CARDIFF	0·87

The mortality from infectious disease in Cardiff was distributed in each quarter of the year as follows :—

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter.
Small-pox ...	—	1	—	—
Measles	4	6	4	7
Scarlet Fever	2	2	2	1
Diphtheria	6	—	5	3
Enteric Fever	1	2	3	1
Whooping Cough	8	21	17	5
Diarrhœa	5	9	42	9

In the Registration Sub-districts the mortality during 1909 from these diseases was as follows :—

	Death rate per 1,000.
East Cardiff	0·63
Central ,,	0·74
West ,,	1·00

TABLE XXXIX.

Death-rates from Infectious Diseases per 1,000 persons living :—

	1875—80	1881—90	1891-1900	1898-1907	1908	1909
Small-pox ...	0·01	0·03	0·01	0·00	0·00	0·00
Measles	0·46	0·66	0·42	0·44	0·02	0·10
Scarlet Fever	1·00	0·41	0·17	0·09	0·05	0·03
Diphtheria	0·11	0·20	0·47	0·32	0·11	0·07
Whooping Cough	0·55	0·52	0·48	0·37	0·25	0·26
Enteric Fever	0·37	0·33	0·14	0·07	0·03	0·03
Diarrhœa	0·78	0·93	0·91	0·59	0·66	0·35

TABLE XL.

The following Table shows the number of cases of infectious disease notified in the City of Cardiff since the adoption of the Infectious Disease (Notification) Act, 1889 :—

Year.	Small-Pox.	Diphtheria (including Membranous Croup)	Scarlet Fever.	Enteric Fever.	Typhus Fever.	Erysipelas.	Puerperal Fever.	Continued Fever.	Totals.
1890	—	72	335	150	—	45	4	2	608
1891	9	70	658	130	—	52	10	—	956
1892	5	164	1,851	118	—	95	12	3	2,248
1893	4	479	816	103	41	152	24	2	1,621
1894	10	343	577	62	1	135	19	3	1,150
1895	1	248	484	79	—	132	17	5	966
1896	45	306	874	74	1	134	21	7	1,462
1897	7	516	758	117	—	163	12	7	1,580
1898	—	960	332	80	—	133	18	6	1,529
1899	—	640	184	94	—	176	13	8	1,115
1900	4	714	383	95	4	106	15	5	1,326
1901	8	734	1,362	73	—	152	16	3	2,348
1902	2	701	1,433	69	—	169	13	7	2,394
1903	65	438	963	100	6	145	20	5	1,742
1904	11	406	658	40	—	112	12	2	1,241
1905	24	327	362	39	—	133	14	3	902
1906	2	333	776	77	—	117	17	1	1,323
1907	16	304	950	62	—	147	16	—	1,495
1908	—	291	475	55	—	167	15	1	1,004
1909	2	283	616	46	—	132	6	2	1,087

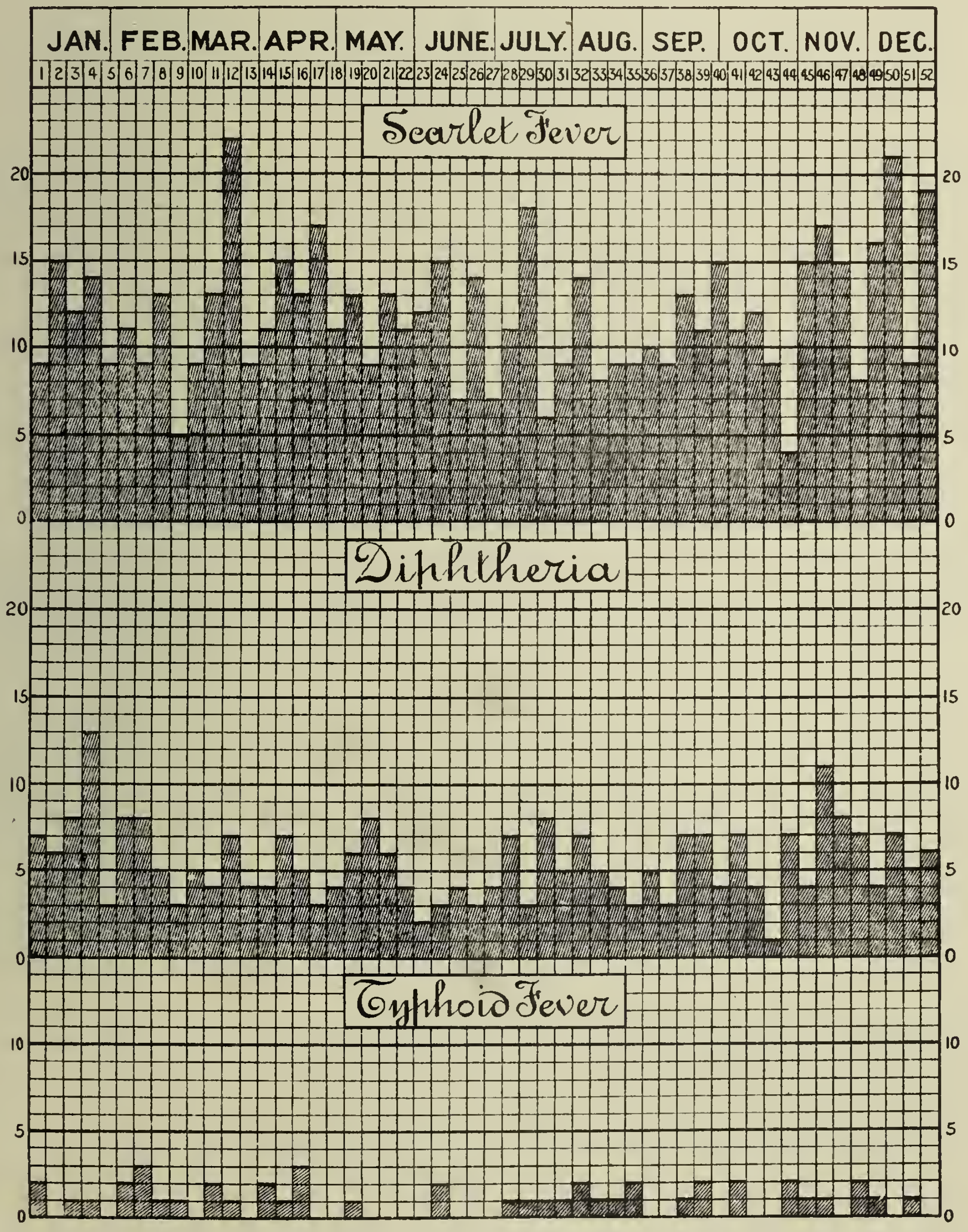
SMALL-POX.—One death from small-pox was registered during the year, and two cases of the disease were notified.

The mortality from small-pox in Cardiff since 1875 was as follows :—

YEARS.	DEATH-RATE PER 1,000.
1875–80	0·01
1881–90	0·03
1891–1900	0·01
1901	0·00
1902	0·00
1903	0·01
1904	0·00
1905	0·00
1906	0·00
1907	0·01
1908	0·00
1909	0·00

Chart E.

SHOWING THE WEEKLY NUMBER OF NOTIFICATIONS OF SCARLET FEVER, DIPHTHERIA, AND TYPHOID FEVER IN CARDIFF DURING THE YEAR 1909.



I am indebted to Mr. Matthews, the Vaccination Officer, for the following return of vaccinations within the City during the year 1909 :—

Successfully Vaccinated	Insusceptible	Postponed	Certificates of Exemption	Died Unvaccinated	Unaccounted for and left the Town
3,066	18	35	545	369	1,012

On June 29th I received information of a suspected case of small-pox from a medical practitioner who had been called in to attend to the patient. On visiting the house of the medical man, I found a man in the surgery with a well developed eruption of small-pox. The patient, W. J. N., aged 35, was a delegate from the Mormon Church, Utah, U.S.A., and was staying in lodgings in Clare Road, Cardiff. This man travelled from Montreal to Liverpool on board the s.s. "Canada," from which ship a case of small-pox had been removed to the Liverpool Small-pox Hospital on the 21st June. He came to Cardiff *via* Bristol on the 28th, and, not feeling well, consulted a medical man. From information obtained from the patient, it would appear that the infection was derived from another Mormon delegate at Montreal, and that small-pox prevailed extensively amongst this community in Utah. The patient was removed to the Cardiff Small-pox Hospital, and no further cases occurred from this infection.

On October 23rd my attention was called by a medical practitioner to a case of suspected small-pox seen by him at his surgery. On visiting the patient, I found him to be suffering from small-pox in quite the early stage of the disease. The infected person, W.H., aged 44, was the Second Engineer on board a steamer from which a case of small-pox had been removed during the voyage. The patient was removed to the Cardiff Small-pox Hospital, and no further cases occurred.

MEASLES.—Twenty-one deaths from measles occurred during the year, being equivalent to an annual death-rate of 0·10 per 1,000 persons living. Twenty of these deaths occurred amongst children under five years of age, and seven amongst those under one year. Measles usually prevails extensively in large towns about every two years, and when it occurs in an epidemic form, spreads with great rapidity, and attacks most of the young children in the district who escaped infection during the last preceding outbreak, or who were not born until after that period. In the year 1907 a severe epidemic of measles occurred, when 176 deaths were registered, equal to an annual death-rate of 0·94 per 1,000 persons living.

Epidemics of measles seriously interfere with the school attendance in the Infant Departments of the Elementary Schools, but for the most part only in these departments, the disease seldom spreading to any extent in the other standards. Under these circumstances, it has been the custom during recent years to exclude only from the Infant Departments children residing in houses in which there are cases of measles. Children from such houses attending other standards are allowed to go to school provided they have previously had measles.

Measles is not a disease which comes under the operation of the Infectious Disease (Notification) Act, so that information as to the existence of cases of this disease is obtained for the most part from School Teachers.

The following is a copy of the notice left at the houses in which measles is known to exist :—

MEASLES.

In every case of Measles or suspected Measles, a medical man should be sent for.

Measles is exceedingly fatal amongst young children ; all such cases therefore require early medical treatment and careful nursing.

Children suffering from the disease should be kept in a well-ventilated and warm room—(temperature 65° F.)

The patient should be separated from all other children for at least three weeks after the appearance of the rash.

The early symptoms of Measles are sneezing, coughing, and watery secretions from eyes and nose.

When the early symptoms appear, the patient should be separated from other children, when, if the disease proves to be Measles, the rash will have appeared.

When the patient has recovered, disinfect the sick room by washing the floor, walls, and furniture (as far as possible) with soap and hot water. Infected articles of clothing and bedding should be boiled for an hour ; and, under medical advice, any such articles may be sent to the City Disinfecting Station on application being made to the Medical Officer of Health.

Children who have already had Measles may be allowed to attend the Boys' and Girls' Departments of Schools, but no children living in houses in which there are cases of Measles may attend the Infant Departments.

EDWARD WALFORD, M.D.,
Medical Officer of Health.

City Hall, Cardiff.

NOTE.—Persons are liable to a fine of £5 for exposing in the street, or in any public place or conveyance, infected persons and things.

SCARLET FEVER.—Seven deaths were attributed to scarlet fever during the year, being equal to an annual death-rate of 0·03 per 1,000 persons living, as compared with 0·05, the rate in 1908, and with 0·09, the average death-rate from this disease during the ten years 1899–1908.

The mortality from scarlet fever throughout the country was as follows :—

	Death rate per 1,000.
England and Wales	0·09
76 Great Towns	0·11
143 Smaller Towns	0·09
CARDIFF	0·03

The number of cases of scarlet fever notified during the year amounted to 616, distributed as follows in the Registration Sub-districts :—

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total.
East Cardiff	45	45	45	89	224
Central ,,	29	39	38	45	151
West ,,	76	77	51	37	241
Totals	150	161	134	171	616

The age periods of the persons notified to be suffering from scarlet fever are given below :—

Ages.	No. of cases Notified.
0—1 years	8
1—5 ,,	193
5—15 ,,	353
15—25 ,,	37
25—65 ,,	25

Of the 616 cases of scarlet fever notified, 491, or 79·7 per cent., were removed to the City Isolation Hospital.

The fatality, or proportion of deaths from scarlet fever to cases notified, amounted to 1·1 per cent. The disease was therefore of an unusually mild type.

TABLE XLI.

SCARLET FEVER.

Year	Population.	No. of Cases Notified.	Attack rate per 1,000	No. of Deaths.	Death rate per 1,000	Percentage Removed to Hospital.	Mortality per cent. of Cases Notified.
1890	117,012	335	2·86	19	0·16	—	5·6
1891	130,283	685	5·25	35	0·27	—	5·0
1892	132,895	1,851	13·17	87	0·65	13	4·7
1893	136,168	816	6·00	39	0·28	22	4·7
1894	139,519	577	4·13	8	0·05	31	1·3
1895	142,958	484	3·38	8	0·05	43	1·6
1896	146,479	874	5·96	28	0·19	48	3·2
1897	150,087	758	5·05	17	0·11	50	2·2
1898	153,783	332	2·15	8	0·05	56	2·4
1899	157,414	184	1·16	3	0·01	66	1·6
1900	161,452	383	2·37	11	0·06	65	2·8
1901	165,308	1,362	8·23	29	0·17	47	2·1
1902	168,909	1,433	8·42	36	0·21	48	2·1
1903	172,598	963	5.57	32	0·18	63	3·7
1904	176,313	658	3·73	25	0·14	72	3·3
1905	180,054	362	2·00	4	0·02	75	1·1
1906	183,823	776	4·22	3	0·01	74	0·4
1907	187,620	950	5·06	21	0·11	72	2·2
1908	191,446	475	2·42	10	0·05	78	2·1
1909	195,303	616	3·10	7	0·03	79	1·1

The connection between scarlet fever prevalence and school attendance is shown in Chart F, giving the number of notifications in each month during the years 1901–1909, from which it will be seen that a fall in the curve is usually found in the month of August, coinciding with the school holidays, which is occasionally followed by a rise, due apparently to the reassembling of the schools in September.

The incidence of this disease upon the several schools in the district is shown in the Annual Report to the Education Authority.

DIPHTHERIA AND MEMBRANOUS CROUP.—The number of deaths registered from these diseases amounted to 14, and were equivalent to an annual death-rate of 0·07 per 1,000, as compared with 0·11, the rate in 1908, and with 0·25, the average rate in the ten years 1899–1908.

The mortality from diphtheria throughout the country in 1909 was as follows :—

	Death rate per 1,000.
England and Wales	0·14
76 Great Towns	0·15
143 Smaller Towns	0·16
CARDIFF	0·07

The number of cases of diphtheria notified in Cardiff during 1909 amounted to 283, as compared with 291 in 1908. The fatality, or proportion of deaths to cases notified, during the year was 4·9 per cent. The number of cases removed to the Isolation Hospital was 176, or 62 per cent. of the cases notified.

The number of notifications during each quarter of the year was as follows :—

	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Total.
East Cardiff	24	23	28	31	106
Central ,,	22	12	18	24	76
West ,,	35	24	22	20	101
Total	81	59	68	75	283

The fatality from diphtheria falls chiefly upon young children. The number of notifications during the year, and the rate of fatality at various age periods are given below :—

Age periods	Cases notified.	Deaths.	Proportion of deaths to cases notified.
0—1 year	7	1	14·3 per cent.
1—5 years	81	9	11·1 ,,
5—15 ,,	126	4	3·1 ,,
15—25 ,,	31	—	—
25—65 ,,	38	—	—

Diphtheria has greatly diminished in prevalence during past years, and has apparently assumed a milder form, as the proportion of deaths to cases notified continues to decrease. From the above figures it will be seen that the chief incidence of the disease falls upon children at school ages, and it is evident that the facilities for infection are increased by the aggregation of young children in the elementary schools, at ages when they are particularly susceptible to infection.

Infected children and children from infected houses are excluded from school until the house is certified to be free from infection by the Medical Officer of Health. The certificate is, of course, in many cases based upon information received from the medical man attending the case. In order to increase the value of these certificates, it has been decided to offer greater facilities for the bacteriological examination of the throats, &c., of convalescents from diphtheria, and this examination will in future be made at the Public Health Laboratory free of charge.

TABLE XLII.

Diphtheria and Membranous Croup.

Year.	Population.	No. of Cases Notified.	Attack rate per 1,000.	No of Deaths.	Death rate per 1,000.	Percentage Removed to Hospital.	Mortality per cent. of Cases Notified.
1890	117,012	72	0·61	15	0·12	—	20·8
1891	130,283	70	0·53	16	0·12	—	22·8
1892	132,895	164	1·23	36	0·27	—	21·9
1893	136,168	479	3·51	93	0·68	—	19·4
1894	139,519	343	2·45	59	0·42	—	17·2
1895	142,958	248	1·73	46	0·32	3	18·5
1896	146,479	306	2·08	55	0·37	3	17·9
1897	150,087	516	3·43	90	0·59	15	17·4
1898	153,783	960	6·24	129	0·83	21	13·4
1899	157,414	640	4·06	61	0·38	46	9·5
1900	161,452	714	4·42	81	0·50	53	11·3
1901	165,308	734	4·44	78	0·47	47	10·6
1902	168,909	701	4·15	88	0·52	46	12·5
1903	172,598	438	2·53	36	0·20	51	8·2
1904	176,313	406	2·30	31	0·17	47	7·6
1905	180,054	327	1·81	23	0·12	56	7·0
1906	183,823	333	1·81	13	0·07	56	3·9
1907	187,620	304	1·62	23	0·12	59	7·6
1908	191,446	291	1·52	22	0·11	62	7·5
1909	195,303	283	1·44	14	0 07	62	4·9

ENTERIC FEVER.—Seven deaths were registered from enteric fever during the year. corresponding to an annual death-rate of 0·03 per 1,000 persons living, and with the rate in 1908. The average death-rate from enteric fever in the 10 years 1899–1908 was 0·06.

The mortality from this disease throughout the country was as follows :—

	Death-rate per 1,000
England and Wales	0·06
76 Great Towns	0·06
143 Smaller Towns	0·06
CARDIFF	0·03

The number of cases of enteric fever notified during 1909 was 46 ; of these 36 were removed to the Isolation Hospital.

The number of cases of enteric fever notified since the Infectious Disease (Notification) Act came into force is shown in the following table, which shows also the attack-rate, the death-rate, and the percentage of deaths to cases notified.

TABLE XLIII.

Enteric Fever.

Year.	Population.	No. of Cases Notified.	Attack rate per 1,000,	No. of Deaths.	Death rate per 1,000.	Percentage removed to Hospital.	Mortality per cent. of cases notified.
1890	117,012	150	1·28	23	0·19	—	15·3
1891	130,283	130	0·99	26	0·19	—	20·0
1892	132,895	118	0·88	24	0·18	3	20·3
1893	136,168	103	0·75	18	0·13	12	17·4
1894	139,519	62	0·44	7	0·05	1	11·2
1895	142,958	79	0·55	14	0·09	13	17·7
1896	146,479	74	0·50	13	0·08	28	17·0
1897	150,087	117	0·77	20	0·13	34	17·0
1898	153,783	80	0·52	17	0·11	23	21·2
1899	157,414	94	0·59	19	0·12	52	20·2
1900	161,452	95	0·58	25	0·15	47	26·3
1901	165,308	73	0·44	11	0·06	57	15·0
1902	168,909	69	0·40	9	0·05	68	13·0
1903	172,598	100	0·57	14	0·08	76	14·0
1904	176,313	40	0·22	9	0·05	57	22·5
1905	180,054	39	0·21	8	0·04	58	20·5
1906	183,823	77	0·41	13	0·07	69	16·9
1907	187,620	62	0·33	13	0·07	56	21·0
1908	191,446	55	0·29	7	0·03	76	12·7
1909	195,303	46	0·23	7	0·03	78	15·2

The following table shows the death-rate per 1,000 from enteric fever in decennial periods and years since 1875.

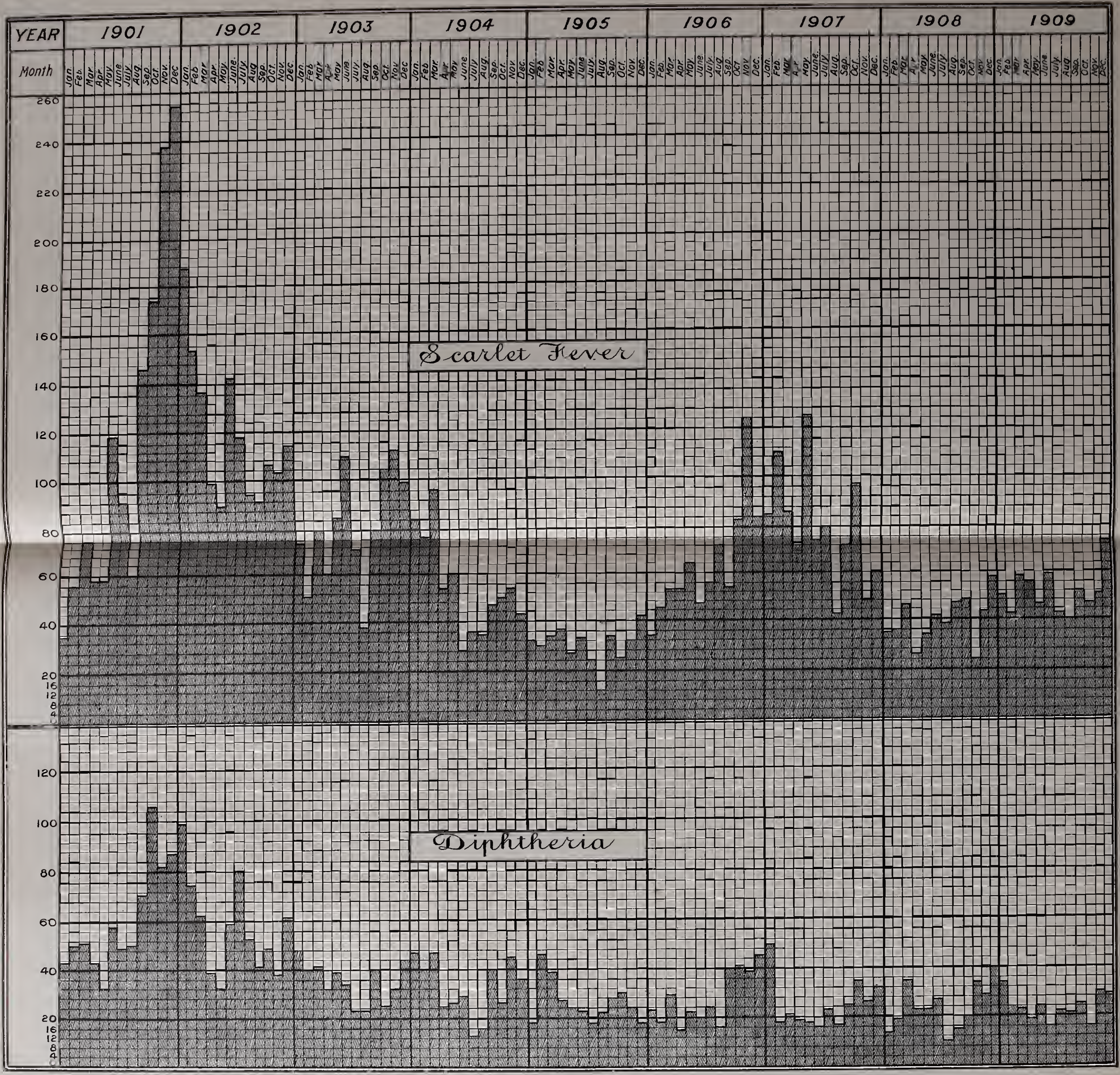
Death-rate from Enteric Fever per 1,000 persons living :—

1875—80	1881—90	1891—1900	1898—1907	1908	1909
0·37	0·33	0·14	0·07	0·03	0·03

From the foregoing tables it will be seen that the low rate of mortality from enteric fever in Cardiff has been maintained. The decline in the prevalence of this disease is one of the most satisfactory features in the sanitary condition of the town, and must be attributed to the extensive public works and improvements which have been undertaken by the Sanitary Authority. Probably the most important factor influencing the decrease in the amount of enteric fever is the excellent quality and abundant supply of pure water provided for the inhabitants of the City and surrounding district. A complete scheme of sewerage and the substitution of the water carriage system of disposal in place of privies and cesspools (now entirely abolished), and a general improvement in the sanitary administration have also exerted a favourable influence in the same direction.

Chart F

SHOWING THE NOTIFICATIONS OF SCARLET FEVER AND DIPHTHERIA IN EACH MONTH DURING THE YEARS 1901–1909.



Of the 46 cases of enteric fever notified, 26 were males and 20 females ; 16 of the cases had their origin outside the City. Upon examination of the premises occupied by persons suffering from the disease, defective drainage or some other sanitary defect was found in sixteen instances. In one case only was there the smallest probability that the disease was conveyed by milk. In two of the cases the patients stated that they had consumed shell-fish shortly before the commencement of the illness ; in one case cockles, and in the other oysters, were possibly the cause of infection.

In six of the houses in which cases of enteric fever occurred, more than one person was attacked with the disease ; in one of these, four cases occurred, and in five, two cases occurred in each house.

TUBERCULOSIS.—The deaths from all forms of tuberculosis during the year 1909 amounted to 308, including 234 from pulmonary tuberculosis or phthisis. The mortality from phthisis was equal to an annual death-rate of 1·19 per 1,000, as compared with 1·22, the average rate in the ten years 1899–1908.

The mortality from Phthisis in Cardiff since the year 1880 is shown in the following Table :—

TABLE XLIV.

Year.	Death-rate per 1,000.	Year.	Death-rate per 1,000.
1880	3·21	1895	1·67
1881	2·96	1896	1·38
1882	2·86	1897	1·99
1883	2·67	1898	1·32
1884	2·97	1899	1·32
1885	3·58	1900	1·25
1886	2·78	1901	1·05
1887	2·72	1902	1·29
1888	2·80	1903	1·19
1889	2·79	1904	1·36
1890	3·18	1905	1·28
1891	2·78	1906	1·20
1892	1·82	1907	1·17
1893	1·68	1908	1·09
1894	1·62	1909	1·19

TABLE XLV.

Death-rates from phthisis per 1,000 persons living in the several Municipal Wards :—

	1901	1902	1903	1904	1905	1906	1907	1908	1909
CARDIFF	1·05	1·29	1·19	1·36	1·28	1·20	1·15	1·09	1·19
Roath Ward	0·60	1·01	0·70	1·45	1·12	0·74	0·72	0·71	0·96
Park ,,	1·10	0·60	0·80	1·01	0·89	0·69	0·79	0·82	0·95
Splott ,,	0·50	0·90	0·60	0·54	0·96	1·12	0·59	0·81	0·69
Central ,,	1·20	1·60	1·60	1·83	1·43	1·23	0·62	1·22	0·81
South ,,	0·90	1·90	1·30	2·15	1·30	1·15	1·54	1·53	1·40
Cathays ,,	0·30	0·50	0·70	0·84	0·88	0·67	0·75	1·04	0·72
Adamsdown Ward	0·90	1·10	1·50	1·03	0·95	1·96	1·59	1·09	1·42
Riverside ,,	0·70	1·70	0·50	0·66	1·00	0·94	1·00	1·48	0·60
Canton ,,	0·70	0·40	0·50	0·88	1·17	0·78	1·02	0·76	0·98
Grangetown ,,	0·70	0·70	1·10	1·27	1·21	1·34	1·10	0·90	1·09

From the foregoing Table it will be seen that the distribution of the higher rates of mortality from phthisis corresponds somewhat closely with that of the higher rates of mortality from all causes shown in Table XXXI. The central and more densely populated parts of the town being those in which all the conditions favourable to the growth of the Tubercle Bacillus and to the spread of infection are most in evidence, *viz.*, poverty, intemperance, dirt, neglect, overcrowding, unsatisfactory housing, and ignorance.

The Public Health (Tuberculosis) Regulations of the Local Government Board, 1908, came into operation on January 1st, 1909.

The Regulations provide for the notification to the Medical Officer of Health of cases of pulmonary tuberculosis occurring amongst the inmates of Poor Law Institutions, and amongst persons under the care of District Medical Officers, and direct that the Medical Officer of a Poor Law Institution, and the District Medical Officers who are in attendance upon a case of pulmonary tuberculosis, shall within forty-eight hours after recognising the nature of the case, post to the Medical Officer of Health a notification of such case on printed forms to be supplied by the Poor Law Authority. Provision is also made for the notification by the Master of the Workhouse of the address of any person leaving the Workhouse in respect of whom a notification has been made by the Medical Officer of the Institution, and for the notification by the Relieving Officer of any change of address of a person in respect of whom a notification has been made by the District Medical Officer. The remuneration allowed and payable by the Sanitary Authority is, in the case of the Medical Officers referred to, at the rate of one shilling for every notification, but where in relation to any one case, two or more notifications have been made, at the rate of sixpence for every such notification after the first. In the case of the Master of the Workhouse or the Relieving Officer, the remuneration is at the rate of three-pence for every notification. In a circular recently issued by the Local Government Board relating to this matter, Sanitary Authorities are advised to utilize the powers which they possess, and which are conferred by the Order for the purpose of preventing the spread of infection from pulmonary tuberculosis.

The notifications received in compliance with these Regulations during the year 1909 from the Medical Officer of the Union Infirmary, and from the District Medical Officers of the Union, amounted to 202 in number.

VOLUNTARY NOTIFICATION OF PHTHISIS.—A system of voluntary notification of cases of phthisis was adopted in the year 1901, when a scale of fees to medical men notifying was framed in accordance with that under the Infectious Disease (Notification) Act.

The number of notifications received by the Medical Officer of Health from medical practitioners since this plan was adopted is shown in the following table :—

Year.	Total No. of Voluntary Notifications.
1902	109
1903	163
1904	205
1905	167
1906	141
1907	133
1908	248
1909	171

When a notification of a case of phthisis has been received by the Medical Officer of Health, inquiries are made by this officer, by a trained assistant, or by the Health Visitors. These visits are made with the consent of the medical practitioner attending the case, and care is taken not to interfere with any advice which he may have already given. Revisits are made from time to time to encourage the patient in carrying out the necessary treatment, and in taking precautions against infection. If necessary, the intervention of the Medical Officer of Health is called for, in order to deal with any insanitary conditions affecting the infected house or locality, and measures are taken for cleansing and disinfecting the premises. Special attention is paid to prevent the indiscriminate expectoration of phthisical persons, and, when necessary, spit bottles are provided free of charge. Free ventilation of the occupied rooms, cleanliness, and suitable diet are also points to which the Health Visitors direct their attention. It is, however, often found difficult to secure the attention of the persons interested to all the essential precautionary measures if they are treated at home throughout the whole course of the illness. Hence the importance of a short course of Sanatorium treatment, in which the patients are trained in the methods of disposal of sputum, and in the general hygienic regulations of life.

In all cases of death from phthisis or change of residence of the patient within the district, a letter and stamped addressed post-card is sent to the occupier of the house, offering disinfection of the premises and of the infected articles free of charge.

Facilities are given in the Public Health Laboratory for the bacteriological examination of sputum of persons suspected to be suffering from phthisis, and this examination is made free of charge in all cases notified.

In a memorandum issued by the Medical Officer of the Local Government Board, the measures which may be taken by Sanitary Authorities in connection with the Public Health (Tuberculosis) Regulations and generally with respect to the prevention of the spread of Tuberculosis are set forth as follows :—

(1)—The voluntary notification of all cases of pulmonary tuberculosis, other than those which are compulsorily notifiable under the Regulations or under any Local Act of Parliament.

(2)—Educational measures ; these comprise means for instructing the members of the general community, those more directly exposed to the infection of tuberculosis, and those already tuberculose, in the essentials of the prevention of this disease.

(3)—Early diagnosis of cases ; amongst the most valuable means of securing early detection of the disease are, (*a*) the provision of facilities for the gratuitous bacteriological examination of sputum, and (*b*) the establishment of special tuberculosis dispensaries.

(4)—The provision of spit-bottles free of charge to the poor.

(5)—Sanatorium treatment.

From the foregoing remarks it will be seen that with the exception of the provision of a special Tuberculosis Dispensary and a Sanatorium, all the measures advocated in this memorandum have been adopted by the Cardiff Sanitary Authority.

TUBERCULOSIS DISPENSARY.—No special dispensary for cases of phthisis exists in the City at the present time, such cases being treated at the Out-patient Department of the Cardiff Infirmary, the Provident Dispensary, by District Medical Officers of the Cardiff Union, and by private Medical Practitioners. A central and special tuberculosis dispensary under municipal control, would facilitate the organisation of a proper system of home visitation by the Health Visitors of the Corporation, and be the means of securing the early diagnosis for patients suspected to be suffering from pulmonary tuberculosis.

In the memorandum by the Medical Officer of the Local Government Board, already referred to, the advantages of a dispensary for tuberculous cases are indicated in the following terms :—

" When such a dispensary is at work, arrangements can be made for nurses attached to the dispensary to visit the patients at home, and enter the information obtained by them on forms, which will subsequently be seen both by the dispensary physician and the Medical Officer of Health. These nurses in some districts will be the Health Visitors of the Sanitary Authority, and in such cases, the domiciliary work of the dispensary becomes a sub-department of the Medical Officer of Health's work. A well-organised tuberculosis dispensary becomes a valuable aid in securing more general notification of cases of tuberculosis, and its visitors can not only secure that domestic precautions are taken, but also that the patients are brought into touch with the different forms of domestic aid, or with the sanatorium or hospital treatment that the needs of the individual case indicate. A tuberculosis dispensary is specially adapted for the needs of large towns."

In several large towns such dispensaries have been established. In a special report to the Corporation of Glasgow, the Medical Officer of Health speaks highly of the Dispensary of the National Association for the Prevention of Consumption, which is accommodated in the Sanitary Chambers, in rooms set apart by the Health Committee, and he recommends that similar provision should be made in other parts of the town.

At the present time your Health Committee has suitable accommodation, and could set apart a room for the purpose of a tuberculosis dispensary. Health Visitors also form part of the staff of the Medical Officer of Health, but their time is now fully occupied. It would be necessary, therefore, to appoint another Health Visitor, who should be a trained nurse, and able to dispense and keep records of cases visited. I would estimate the expense roughly as follows :—Medical Officer, honorarium, £50 per annum ; Health Visitor's salary, £80–100 per annum ; Drugs and Instruments, £25 per annum ; Fittings and Appliances, £30 ; Attendant, £10 ; Uniform, £5.

The following information was obtained by the Health Visitors, relating to 187 cases of phthisis visited by them during the year.

TABLE XLVI.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
	CENTRAL WARD.								
87	Fish Hawker	1	5	1 used	1 used	None known.	Fair	No attempt made	—
88	Dock Labourer ...	—	2	1 used	—	,, ,,	,,	,, ,,	—
89	Printer	2	6	4	4	Several children died of phthisis.	,,	,, ,,	No isolation.
90	Scholar	1	6	4	4	Mother and cousins died of phthisis.	Fairly clean	Windows opened occasionally	—
92	Housewife	—	6	3	3	Two sisters recently died of phthisis.	Fairly good	,, ,,	—
102	—	2	3	2	2	Brother died of this disease.	Clean	No attempt made	Isolated at night.
104	Labourer	—	3	1 used	2	None known	,,	,, ,,	,, ,,
106	Housewife	4	2	2	2	,, ,,	Fairly clean	Some attempt	No isolation.
108	Scholar	—	3	2	2	Brother and sister died of phthisis.	,, ,,	Open windows	,, ,,
109	Labourer	—	4	1 used	2	Cousins, aunts, and sisters died of phthisis.	Dirty	,, ,,	,, ,,
110	Scholar	—	—	2	2	None known.	Clean	,, ,,	,, ,,
111	Collier	4	4	3	3	Brother recently died of phthisis.	Fairly clean	Windows open occasionally	,, ,,
112	Shop-Keeper ...	1	1	1 used	1 used	None known.	Clean	,, ,,	Isolated at night.
113	Housewife ...	1	2	1 used	1 used	,, ,,	,,	,, ,,	No isolation.
114	Scholar	3	3	2	2	,, ,,	,,	,, ,,	Sleeps alone.

TABLE XLVI—continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
	SOUTH WARD.								
198	Housewife	—	9	3	4	Sister died of phthisis	Good	Open windows	No isolation.
200	Coal Trimmer	—	5	2	2	Brothers and sisters consumptive.	Indifferent	No attempt	,, ,,
201	—	—	3	6	3	None known.	Good	Open windows	Isolated by night.
202	Wife of Boarding House Keeper	1	13	3	5	Probably on paternal side.	Good	Fairly good	Isolated by day and night.
203	Boarding House Keeper	1	9	3	4	None known.	,,	,, ,,	No isolation.
204	Housewife	—	6	2	2	,, ,,	Dirty	No attempt	,, ,,
	CATHAYS WARD.								
66	Scholar	2	4	2	2	None known	Fairly good	Casual	—
67	Scholar	4	4	1	2	Grandmother died of phthisis.	,, ,,	,,	—
68	Scholar	2	3	3	3	Four brothers and sisters died of phthisis.	Good	Open windows	—
69	Scholar	1	3	2	3	Aunts, uncles, and cousins on both sides of family, and maternal grandfather died of phthisis.	Clean and bright	,, ,,	—
70	Errand Boy	1	8	3	3	Maternal history of phthisis; brother also died.	Clean	Open windows	—
72	Scholar	2	9	3	3	None known.	Clean and bright	Open windows	—
73	Scholar	—	3	1 used	1 used	Grandmother died of phthisis.	,, ,,	,, ,,	—
74	French Polisher	4	4	3	4	An aunt died of phthisis.	Good	Well ventilated	Isolated by night.

TABLE XLVI.—continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other Cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
75	Scholar	3	4	2	3	Father, three sisters and an aunt died of this disease.	Fairly clean	Windows sometimes open	—
76	Scholar ...	—	3	2	3	None known.	Clean	Open windows	—
77	Housewife	2	3	3	3	,, ,,	Fairly clean	,, ,,	—
79	Engine Driver ...	—	—	3	3	Wife and son died of phthisis.	Clean	,, ,,	Isolated by night.
80	— ...	—	—	—	—	None known	—	—	—
81	Housewife	3	2	3	3	,, ,,	Fairly clean	,, ,,	—
82	Telephone Operator ...	—	5	3	3	,, ,,	Clean	Well ventilated	—
143	Laundress	—	7	3	3	,, ,,	Good	Open windows	Isolated by night.
	ADAMSDOWN WARD								
93	Domestic Work ...	1	3	2	2	Father and uncle died of phthisis.	Clean	Open windows	—
94	Scholar	—	4	2	2	Father died of phthisis.	Fairly clean	No attempt made	—
95	—	—	2	1 used	—	None known.	Fair	Open windows	—
96	Grain-bag Maker ..	—	2	1 used	—	Father and brother died of phthisis.	Clean and bright	,, ,,	—
97	Dock Labourer ...	—	2	9	1 used	None.	Dirty	No attempt made	No isolation.
98	Bag Maker ...	3	4	3	3	,,	Fairly clean	,, ,,	,, ,,
99	Scholar ..	2	4	1 used	2	Paternal history of phthisis	Clean	,, ,,	,, ,,
101	Scholar ...	1	3	1 used	2	None known.	,,	Open windows	,, ,,

TABLE XLVI. continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other Cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
105	Coal Trimmer	—	4	2	2	None known	Clean	Some attempt	No isolation
115	Domestic Work	—	4	1 used	1 used	,, ,,	,,	No attempt made	,, ,,
117	Housewife	2	2	2	2	Father died of phthisis.	,,	Open windows	,, ,,
118	Housewife	2	3	2	2	None known.	,,	,, ,,	Isolated.
123	Domestic Work	—	3	2	2	,, ,,	,,	,, ,,	Isolated at night
129	Coal Trimmer	—	2	1 used	1 used	,, ,,	Fairly clean	No attempt made.	No isolation.
135	Scholar	—	3	1 used	2 used	Father, mother and two brothers died of phthisis.	Clean	,, ,,	,, ,,
137	Scholar	—	3	3	3	Grandfather and uncle died of phthisis.	,,	Open windows	—
150	—	—	—	—	—	Maternal history of phthisis	Fairly clean	No attempt made	No isolation.
160	Tailoress	3	4	3	3	None known.	Clean	Open windows	Isolated
165	Housewife	2	2	2	3	An aunt and sister died of phthisis.	Clean	,, ,,	,,
	RIVERSIDE WARD.								
41	Clerk	—	5	3	3	Sister and grandfather died of phthisis.	Clean	Open windows	—
49	Musician	—	8	3	3	Uncle and aunt died of phthisis.	Fairly clean	Windows open at times	—
53	Scholar	5	2	3	4	On maternal side.	Clean	Open windows	—
54	Errand Boy	2	2	3	3	,, ,,	,,	Good	—
57	—	—	4	3	3	None known.	,,	Open windows	—

TABLE XLVI—continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
60	Seaman	—	4	2	2	None known	Fair	Open and broken windows	—
83	Seaman	1	4	3	3	,, ,,	Clean	Open windows	Isolated by night.
85	Housewife	—	4	1 used	2 used	,, ,,	,,	Windows open occasionally	—
91	Scholar	1	7	3	3	Sister died, and two brothers now suffering from phthisis.	,,	Open windows	—
	CANTON WARD.								
39	Housewife . ..	1	4	3	3	Nine children died of phthisis.	Clean	Open windows	—
40	Scholar	1	3	2	2	Father consumptive.	Quite clean	,, ,,	—
43	Scholar	4	4	2	3	None known.	Clean	Open windows	—
46	Scholar	—	4	2	2	On paternal side.	Fairly clean	No attempt made	—
47	—	3	3	2	2	—	,, ,,	,, ,,	—
48	Labourer	—	3	1 used	1 used	None known.	Unsatisfactory	,, ,,	—
50	Clerk	—	6	3	3	Mother consumptive.	Clean	Windows not open	—
51	Clerk	—	8	2	4	An aunt and uncle died of phthisis.	,,	Good	—
52	Child (aged 5) ...	4	4	2	2	On paternal side.	,,	Windows not open	—
55	Employed in Woollen Warehouse ...	—	3	2	3	On maternal side.	Fair	Good	Isolated by night.
56	Housewife	2	2	1 used	1 used	Several deaths from phthisis on maternal side.	Clean	Open windows	—

TABLE XLVI—continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
58	Formerly a Soldier	1	6	3	3	None.	Clean	No attempt made	Not isolated.
59	Child (aged 4) ...	2	7	3	3	On maternal side.	Fairly clean	Open windows	—
61	Page Boy	—	9	2	4	None known.	Clean	,, ,,	Isolated by night.
62	Labourer	3	4	2	2	,, ,,	Fairly clean	,, ,,	—
63	Scholar	4	2	2	2	,, ,,	,, ,,	Casual	—
64	Dressmaker ...	—	7	3	3	Father died of phthisis.	Clean	Open windows	—
65	Housewife	1	2	2	2	None known.	,,	Windows closed	—
84	Dressmaker	2	4	3	3	,, ,,	,,	No attempt made	—
	GRANGETOWN WARD								
1	—	3	3	3	3	None	Quite clean	Good	—
2	Hawker ...	3	4	2	3	,,	Fair	Casual	—
3	Stoker	—	2	1 used	1 used	None	Quite clean	Good	—
4	Housewife ...	3	7	3	4	,,	Indifferent	Casual	—
5	Sawyer	2	6	2	3	Brother died of phthisis.	Fairly clean	Open windows	—
6	Formerly a Soldier	3	2	1 used	1 used	None.	Clean	Insufficient	—
7	Employed in Mineral Water Works	—	3	2	2	,,	Clean	Good	—
8	Waiter	5	4	2	2	,,	,,	Open windows	—

TABLE XLVI.—continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other Cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
9	Housewife	—	3	1 used	1 used	None.	Dirty	No attempt made	—
10	Labourer	1	5	3	3	On maternal side	Clean	Open windows	
11	Tailor	—	5	2	4	Ten children died of consumption.	,,	,, ,,	
12	Boilermaker	4	5	3	3	None known.	,,	,, ,,	
13	Fireman	5	5	2	3	,, ,,	Unsatisfactory	No attempt made	
14	Labourer	2	9	3	3	Brother died of consumption.	Clean	,, ,,	
15	French Polisher	—	4	2	3	None known.	,,	Open windows	
16	Domestic Servant	—	6	3	3	,, ,,	,,	Casual	
17	Scholar	2	5	2	3	Father, mother and brother died of phthisis.	Fairly clean	,,	
18	Labourer	3	6	1 used	3 used	None known.	,, ,,	,,	
19	Scholar	2	3	1 used	2 used	,, ,,	Clean	,,	
20	Scholar	5	3	2	3	An aunt died of phthisis.	,,	,,	
21	Seaman	1	8	3	3	Several members of family died of phthisis.	,,	Open windows	
23	Housewife	4	6	3	5	None known.	,,	Insufficient	
24	Hawker	—	1	1 used	1 used	,, ,,		Open windows	—
25	Scholar	2	2	1	—	Sister died of Tuberculosis of Intestines.	,,	,, ,,	
27	Engineer	2	2	2	2	None known.	,,	,, ,,	

TABLE XLVI — continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
28	Clerk ..	—	5	3	3	Sister died of phthisis.	Quite clean	Good	—
29	Labourer ..	—	1	1 used	1 used	None known.	Very fair	Open windows	
30	Boilermaker ...	—	3	1 used	1 used	,, ,,	,, ,,	Windows closed	
31	Shop Assistant	—	8	3	3	,, ,,	Clean	Open windows	—
32	Seaman ..	—	6	2	3	,, ,,	Fair	,, ,,	—
33	Scholar ...	4	5	2	3	An aunt died of phthisis.	Clean	,, ,,	—
34	Policeman	—	7	3	3	Father and sister died of phthisis.	,,	Casual	—
35	Housewife	3	5	1 used	3	On paternal side.	Fair	Insufficient and room dark	
	ROATH WARD.								
125	Seaman	—	4	3	4	Mother died of phthisis.	Clean and bright	Open windows	Isolated at night.
126	Van Driver ..	3	7	3	3	None known.	,, ,,	No attempt made	,, ,,
127	Housewife	—	3	1 used	2	,, ,,	,, ,,	Open windows	No isolation.
128	Labourer ..	3	4	1 used	2	None known.	Fairly clean	No attempt made	,, ,,
131	Housewife	6	3	2	3	Phthisis in husband's family.	,, ,,	Open windows	,, ,,
134	Plasterer ..	3	3	2	3	None known.	Clean	,, ,,	Isolated at night.
136	Scholar	—	—	3	4	,, ,,	,, ,,	,,	,, ,,
138	Scholar ..	7	5	3	3	Brothers, sisters, and aunt died of phthisis.	,,	,, ,,	Sleeps in mother's room.

TABLE XLVI—continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
139	Scholar ...	—	3	3	3	Mother died of consumption	Clean	Open windows	Isolated at night.
144	Scholar	3	4	2	2	None known.	,,	.. ..	—
145	Housewife ...	2	3	2	2	,, ,,	,,	.. ..	Isolated at night.
146	Labourer	—	—	—	—	,, ,,	Fair	No attempt made	No isolation.
148	Scholar ...	3	5	3	3	Mother and father phthisical.	Clean	.. ,,	,, ..
151	Book Keeper	—	6	3	3	None known.	..	Open windows	Isolated at night.
153	Housewife	4	4	1	2	Children and husband died of phthisis.	..	.. ..	No isolation.
155	Tailor	1	5	2	3	Sister died of phthisis.	..	.. ..	Isolated by night.
157	Domestic Servant	—	4	2	2	—	..	.. ..	..
158	Shipwright	—	3	2	3	None.	,,	.. ..	.. ,,
159	Housewife	—	2	1	1	None known.	..	.. ,,	Isolated
162	Housewife	6	4	3	3	Mother died of phthisis.	..	Windows sometimes open.	No isolation.
	PARK WARD.								
36	Housewife	3	3	3	3	None known.	Clean	Open windows	—
37	Child (7 years)	—	—	3	3	.. ..	Quite clean	Good	—
38	Scholar	—	—	3	3	,, ..	Clean	..	—
78	Boilermaker	—	4	3	3	Wife died of phthisis.	..	Open windows	Isolated by night.

TABLE XLVI. - continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other Cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
119	Employed at Biscuit Factory	—	6	3	3	Maternal history of phthisis	Clean	Open windows	Isolated by night.
120	Boat-builder	—	4	3	3	Father and mother died of phthisis.	,,	,, ,,	,, ,,
121	Housewife	1	4	3	3	Three sisters and six cousins died of phthisis.	,,	,, ,,	No isolation.
122	Clerk	2	5	2	4	Mother died of phthisis.	Fairly clean	No attempt made	,, ,,
130	Scholar	4	5	2	3	An aunt died of phthisis.	,, ,,	Open windows	,, ,,
140	Housewife	2	5	3	3	None known.	Clean	,, ,,	,, ,,
141	Bottle-washer	—	7	2	2	,, ,,	Fairly clean	,, ,,	,, ,,
142	Housewife	—	—	1 used	1 used	,, ,,	,, ,,	No attempt made	,, ,,
147	Traveller	—	—	2	3	,, ,,	Clean	Open windows	—
149	Labourer	4	2	2	2	,, ,,	,,	No attempt made	No isolation
152	Housewife	3	3	3	3	Father and sister died of phthisis.	,,	Open windows	,, ,,
154	Housewife	—	1	3	3	None known.	,,	,, ,,	—
156	—	—	3	3	3	Aunt and sister died of phthisis.	,,	,, ,,	Isolated.
161	Housewife	—	3	1	1	Husband died of phthisis	Dirty	No attempt made	No isolation
	SPLOTT WARD.								
166	Housewife	2	5	4	4	None known.	Fairly clean	Casual	No isolation
167	Laundress	—	2	1 used	1 used	Sister died of phthisis.	Quite clean	Open windows	Isolated at night.

TABLE XLVI. continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other Cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
168	Scholar	4	3	2	2	None known.	Fairly clean	Doors kept open	No isolation
169	Scholar	5	3	3	3	,, ,,	Clean	Open windows	,, ,,
170	Employed in Oil Skin Factory	4	6	3	3	Father, brothers and sisters died of phthisis.	,,	,, ,,	,, ,,
171	Scholar	4	6	3	3	Father, brothers and sisters died of phthisis.	,,	,, ,,	,, ,,
172	Boilermaker	1	5	3	3	None known.	Fairly clean	,, ,,	,, ,,
173	Employed at Iron Works	6	6	3	3	,, ,,	,, ,,	Windows sometimes open.	
174	Housewife	4	6	3	3	,, ,,	,, ,,	No attempt made	,, ,,
175	Housewife	3	5	3	3	On maternal side.	Clean	Open windows	,, ,,
176	Scholar	—	7	3	3	None known.	Fair	No attempt made	,, ,,
177	Housewife	3	1	1 used	1 used	,, ,,	Clean	Some attempt made	,, ,,
178	Employed at Iron Works	4	6	2	3	A brother consumptive.	Fairly clean	Windows closed	,, ,,
179	Domestic Servant	—	6	2	3	None known.	Clean	Open windows	Isolated
180	Employed in Marine Stores	5	4	3	3	,, ,,	Clean	No attempt made	No isolation.
181	Domestic work	2	4	3	3	,, ,,	Unsatisfactory	,, ,,	,, ,,
182	None	4	6	2	4	,, ,,	Fairly clean	,, ,,	Isolated at night.
183	Newsagent	5	2	3	3	Two deaths on maternal side.	Clean	Open windows	No isolation.
184	Scholar		5	3	3	On maternal side	,,	,, ,,	Isolated at night.

TABLE XLVI—continued.

Ref. No.	Occupation.	No. of Occupants of House.		No. of Living Rooms.	No. of Bed-rooms.	Other cases of Phthisis in Family or House.	Condition of House.		
		Under 10 years.	Over 10 years.				Cleanliness.	Ventilation.	Isolation.
185	Housewife	1	6	3	4	Several sisters and brothers died of phthisis.	Clean	Open windows	No isolation.
186	Child (aged 3)	2	2	3	3	Grandfather and brother died of phthisis.	,,	,, ,,	,, ,,
187	None	—	2	1 used	1 used	Father died of this disease.	,,	,, ,,	,, ,,
189	Scholar	—	4	2	3	Mother died of phthisis.	,,	,, ,,	,, ,,
190	Laundress	4	3	3	3	None known.	,,	,, ,,	Isolated.
191	Housewife	4	4	3	3	,, ,,	Indifferent	No attempt made	No isolation
192	Dressmaker	—	6	3	3	,, ,,	Clean	Open windows	Isolated
193	Scholar	1	6	1 used	3 used	Father suffering from phthisis.	Fairly clean	,, ,,	
195	Porter (cripple)	3	3	1	3	Grandfather died of phthisis	,, ,,	,, ,,	,, ,,
196	Housewife	1	2	1 used	1 used	Father and two brothers died of phthisis.	,, ,,	Windows sometimes open	,, ,,
197	Widow	1	5	3	3	Lived in house with consumptive people.	Clean	,,	,, ,,

DISINFECTION.—During the year the routine disinfection comprised the following :—

Houses Disinfected				1,052
School Class-rooms disinfected				35
Articles of Bedding,	Clothing,	&c.	disinfected	8,963
,,	,,	,,	destroyed	130

Infected premises are disinfected either by fumigation with sulphur dioxide, with formaldehyde, or by means of a spray of formalin. Articles of clothing and bedding are for the most part removed from the house in which the infectious disease occurred to the temporary disinfecting station in Sloper Road, and submitted to disinfection by saturated steam, at a pressure of 30lbs on the square inch, in a Washington Lyons' high pressure steam disinfecting apparatus. The unsatisfactory condition of this temporary structure has been commented upon from time to time, and the Sanitary Authority has now by resolution decided to apply to the Local Government Board for permission to borrow money to enable them to construct a permanent Disinfecting and Cleansing Station upon ground belonging to the Corporation adjacent to the Mortuary. The necessity for combining provision for cleansing and bathing with that for disinfection was shown in a recent report to the Health Committee, from which the following is an extract.

Extract from report of Medical Officer of Health, dated November, 1909.—

PERSONAL CLEANLINESS.

(1)—The Cleansing of Persons Act, 1897, gives power to local authorities to provide suitable apparatus or appliances for cleansing persons infected with vermin, and to permit any person so infested to have the use, free of charge, of any such apparatus or appliances as the sanitary authority may possess for cleansing his person and clothing.

(2)—The Midwives Act, 1902, and the Rules of the Central Midwives Board require the cleansing and disinfection of midwives and of their clothing and appliances in certain cases set forth in the Rules of the Board. Few midwives have suitable appliances and arrangements for complying efficiently with the rules in this respect, and many local authorities require the infected midwives to use the cleansing and disinfecting appliances provided by them under the Cleansing of Persons Act.

(3)—The Children Act, 1908, provides for the cleansing and disinfection of children attending Public Elementary Schools who are infested with vermin, and gives power to the Medical Officer to cause any child so infested to be conveyed to the place provided by the sanitary authority under the Act, and to detain the child until the cleansing is effected. The parents of children can be prosecuted under the Children Act for neglecting to carry out the instructions of the Medical Officer in this respect.

(4)—The Public Health Acts Amendment Act, 1907 (Section 61), and the Infectious Disease Prevention Act, 1890 (Section 15) provide for the removal of persons from infected premises, and for the personal disinfection and cleansing of those removed. Under certain conditions an Order of the Justices may be obtained for the compulsory removal of persons to suitable premises provided by the sanitary authority.

DISPOSAL OF THE DEAD.

The question of the provision of a crematorium has been from time to time under the consideration of your Sanitary Authority, but no decision has yet been arrived at. It may not be out of place, therefore, to bring this matter to your notice in this report.

The Cardiff Cemetery occupies an area of about seventy-two acres, situated at the time of its erection upon the northern outskirts of the town, but now more or less surrounded by houses. The soil consists for the most part of pervious gravel lying upon an impervious stratum of red marl, the subsoil water rising at times to within a few feet of the surface. The cemetery was opened for use in the year 1869, and from information derived from the City Treasurer, I find that up to the 9th April, 1910, 82,533 bodies have been buried there. It is evident that the time is approaching when an expensive extension of the Cemetery grounds will be necessary. This might to some extent be avoided if popular prejudice and misdirected sentiment could be overcome, and the advantage of cremation fully realized.

The ancient custom of disposing of the bodies of the dead by cremation was reintroduced into this country mainly by the efforts of the late Sir Henry Thompson, F.R.C.S., who founded the Cremation Society in 1874. Since that date there has been a steady growth of opinion in favour of the practice. In 1902 the Cremation Act was passed, enabling Local Authorities to provide and maintain crematoria, and to make regulations prescribing the methods, forms, and certificates to be adopted in carrying out the disposal of human remains by burning.

The advantages of cremation from a sanitary point of view are so obvious, especially in large towns, that it is unnecessary to enlarge upon this aspect of the question. When cemeteries were erected for the use of large populations, they were usually placed in the outskirts of the town, but in many cases since their establishment, houses have been built in large numbers in the immediate neighbourhood. This has taken place in Cardiff, where the neighbourhood of the Cemetery has become an important residential district, so that within a short time this place of burial will be surrounded by dwelling houses, and in the same undesirable position as those old burial places in the centre of the town, which have been disused on sanitary grounds for many years past. The retention of large numbers of slowly decomposing bodies in the ground in populous districts is a distinct danger to health.

The soil upon which houses are built in the vicinity of our cemetery must of necessity, in course of time, become saturated with noxious gases and products of decomposition, and altogether unsuitable for dwellings. The only remedy for this evil would appear to be cremation, which absolutely prevents all possibility of contamination of soil or air, and effects in a little over an hour that which takes years to do if the body is buried in the ground. Economy may also be advanced as an argument in favour of this method of disposing of the dead, which, if extensively adopted, would solve for a long time to come the question of providing more ground in connection with the existing cemetery.

At the present time the process of cremation has got quite beyond the experimental stage, and according to the last Report of the Cremation Society, there are already thirteen crematoria in this country, and others in the course of construction. Provision for cremation has been made in the following towns :—London, Manchester, Liverpool, Glasgow, Hull, Darlington, Leicester, Birmingham, Leeds, Bradford, and Sheffield.

It should also be mentioned that the regulations regarding the certification of death, in cases where cremation is effected, are much more satisfactory than those which are now in force in cases of earth burial. According to official returns, about 8,000 bodies are buried annually in England and Wales without any medical certificate at all, and even where such certificates are obtained, the medical man certifying is not obliged to state that he has seen the dead body, whereas by the regulations made under the Cremation Act, 1902, no cremation can take place unless certificates are obtained from two medical men who have seen the dead body, and who can testify as to the cause of death. The regulations are, in fact, so stringent that it is practically impossible for foul play or irregularity to escape notice.

I am aware that there are in some quarters religious prejudices against the practice of cremation, but there are also a large number of intelligent persons who do not share these prejudices, and who would welcome the provision by your Authority of facilities for disposing of the dead by a method which can be conducted in a most reverent and proper manner, without the danger to the living, which is obviously associated with earth burial in populous districts.

I have, therefore, no hesitation in advising you, in the interests of the public health, to take this matter into your serious consideration.

CARDIFF SANATORIUM.

The following Report of the Medical Superintendent, shows that during the year 1909, 811 cases of infectious disease were under treatment, as compared with 730 in the year 1908.

	0 to 5 years.	5 to 15 years.	15 to 25 years.	25 to 35 years.	35 to 45 years.	45 to 55 years.	55 to 65 years	Totals.
Remaining in Hospital, 31st Dec., 1908—								
Scarlet Fever	19	48	5	4	...	...	...	76
Diphtheria	4	12	1	1	...	...	...	18
Enteric Fever	...	1	2	1	...	...	...	4
Totals	23	61	8	6	...	...	...	98
Admitted during the year 1909—								
Scarlet Fever	163	274	35	16	4	1	1	494
Diphtheria	53	75	27	10	6	4	2	177
Enteric Fever	2	9	13	9	2	1	3	39
Small Pox	...	...	1	1	1	...	...	3
Totals	218	358	76	36	13	6	6	713
Totals under treatment in 1909 ...	241	419	84	42	13	6	6	811
Of the above there were discharged—								
(*a*) Recovered—								
Scarlet Fever	159	267	36	17	4	1	1	484
Diphtheria	50	79	24	9	5	4	2	173
Enteric Fever	2	8	13	10	2	1	2	38
Small Pox	...	...	1	...	1	...	...	2
Totals	211	354	74	36	12	6	5	697
(*b*) Died—								
Scarlet Fever	2	1	1				...	4
Diphtheria	4	1					...	5
Enteric Fever	...	...					1	1
Small Pox	...	...		1			...	1
Totals	6	2	1	1	...	...	1	11
Remaining in Hospital 31st Dec., 1909 :								
Scarlet Fever	21	54	4	3	...	...	.	82
Diphtheria	3	7	3	2	1	...	...	16
Enteric Fever	...	2	2	...	...	...	...	4
Totals	24	63	9	5	1	...	...	102
Totals under treatment in 1909 ...	241	419	84	42	13	6	6	811

Mortality per cent. under treatment—

Scarlet Fever	0·7	Diphtheria	2·6
Enteric Fever	2·3	Small Pox	33·3

B. W. BROAD, M.B., *Medical Superintendent.*

CARDIFF METEOROLOGICAL STATION.

The Cardiff Meteorological Station is situated at Penylan, on land belonging to the Corporation (Waterworks Department). The Milne's Horizontal Pendulum Seismograph, presented to the Corporation by the Cardiff Naturalists Society, and the Public Telescope are also housed at the same place.

The Meteorological Station is under the control of the Medical Officer of Health, and Mr. T. Chant, his Chief Clerk, is the Assistant Meteorologist, and takes the readings of the instruments at 9 a.m. daily, performs all statistical and other clerical work connected with the observations, and attends to the Seismograph. The 9 p.m. readings are taken by Mr. W. J. Mellings, Caretaker of the Penylan Reservoir and Public Telescope.

The geographical position of the Cardiff Meteorological Station is, Latitude 51° 30′ 16″ N., Longitude 3° 9′ 33″ W., and the height of the Station above mean sea level is 203 feet.

The Dry and Wet-bulb Thermometers (Hygrometer), the Maximum and Minimum Thermometers are mounted in a Stevenson Screen, a double louvred box through which a free current of air can pass, but into which the sun cannot shine. This screen is painted white during the spring of each year.

The Solar Maximum Thermometer is mounted on a post by means of a brass clip four feet above the ground. This is a Black-bulb Thermometer *in vacuo*, and is freely exposed to the sun, with the bulb directed to the South.

The Terrestial Minimum Thermometer in use is a sensitive minimum thermometer in a glass shield hermetically sealed, and is placed horizontally on short grass.

The underground temperatures are recorded by two Symon's Earth Thermometers, one foot and four feet respectively. These thermometers are suspended in iron tubes, closed above the grass by copper covers.

The Rain Gauge is of the Snowdon pattern, the diameter of the cylinder being five inches, and the gauge is so fixed that the rim is twelve inches above the ground.

The above-mentioned instruments are placed in an enclosure, twenty-five feet square, surrounded by railings three feet in height.

The Sunshine Recorder in use is "Campbell Stokes," and is placed on the coping of the Penylan Reservoir (near the other instruments).

The Barometer (which is Kew-pattern) is mounted in a case which is fastened to a wall inside the Penylan Water Tower. The cistern of the Barometer is 216 feet above the mean level of the sea.

The Wind Vane is fixed on the Water Tower.

It should be mentioned that the Barometer, Sunshine Recorder, and Solar Maximum Thermometer were presented by the Cardiff Naturalists Society.

The readings of the Dry and Wet-bulb Thermometers are taken at 9 a.m. and 9 p.m., and the relative humidity is deduced from these readings by means of Glaisher's Tables.

The Maximum, Minimum, and Solar Maximum Thermometers are read at 9 p.m. The mean temperature is determined by adding together the means of the Maximum and Minimum Thermometers and dividing by 2.

The underground and terrestrial minimum temperatures are recorded at 9 a.m.

The Rainfall (if any) is measured at 9 a.m. each day, and the amount is entered to the previous day.

The Sunshine Card with the record for the day is removed after sunset and replaced by a new card ready for the following day. The cards with the actual sunshine records are forwarded to the Meteorological Office early in each month, but the amount of sunshine is, of course, entered with the other meteorological statistics and carefully preserved locally.

Barometric pressure is recorded at 9 a.m. and 9 p.m., and the weekly and monthly means are calculated from these readings. The readings of the Barometer are also reduced to 32° F., and Mean Sea Level. by means of Tables supplied by the Meteorological Office.

The instruments in use have been verified at the Kew Observatory, and the necessary instrumental corrections are duly made.

Observations are telephoned daily to one of the local newspapers, and a weekly report on the weather is sent to the Meteorological Office, which is included in the Weekly Weather Report for Agricultural and Sanitary Purposes, and also in the Monthly Weather Report issued by that office.

The Meteorological Station is recognised by the Meteorological Office, London, as a Station of the "Second Order," and is periodically inspected by an Inspector from that office, who has on each occasion reported favourably upon the arrangements at the station and upon the way in which the observations are taken and the records kept.

The averages with which the monthly rainfall and mean temperatures are compared are those for the twenty years 1889–1908, and the sums following the signs + and — in the Tables show respectively the difference from the average, either *above* or *below*.

TABLE XLVII.

BAROMETRIC PRESSURE AND RELATIVE HUMIDITY.

1909.	Mean Barometric Pressure*		Hygrometer*		
	Uncorrected.	At M.S.L. and 32°F.	Dry-bulb (mean)	Wet-Bulb (mean)	Mean Relative Humidity.
	in.	in.	° F.	° F.	%
January	29·969	30·179	38·4	36·9	86
February	29·953	30·166	36·9	35·2	85
March	29·328	29·538	38·2	36·9	88
April	29·794	29·981	47·4	44·2	78
May	29·932	30·100	51·6	47·4	73
June	29·822	29·983	53·0	50·6	83
July	29·807	29·958	57·8	55·1	83
August	29·883	30·021	60·5	57·3	81
September	29·898	30·054	53·9	51·5	83
October	29·633	29·802	51·0	49·2	88
November	29·770	29·969	41·6	39·8	86
December	29·471	29·676	40·4	39·2	90
Means	29·772	29·952	47·5	45·3	84

* From observations at 9 a.m. and 9 p.m.

TABLE XLVIII.

TEMPERATURE.

1909.	Maximum.	Minimum.	Mean of Maximum.	Mean of Minimum.	Mean Temperature.	Difference from Average (20 years).
	° F.	° F.	° F.	° F.	° F.	° F.
January	50·2	21·0	43·6	34·2	38·9	+ 0·4
February	52·2	25·0	44·1	32·2	38·2	— 1·6
March	53·7	17·5	44·0	32·7	38·4	— 4·0
April	69·7	31·0	56·2	39·9	48·0	+ 1·8
May	77·7	33·0	61·4	42·3	51·8	— 0·5
June	68·4	42·0	60·8	47·1	54·0	— 3·4
July	70·9	44·8	63·8	52·1	57·9	— 3·3
August	79·9	45·2	69·1	51·6	60·4	+ 0·3
September	66·6	43·3	60·3	48·2	54·2	— 2·3
October	64·1	29·0	57·1	45·4	51·2	+ 1·1
November	55·0	27·3	47·4	36·9	42·2	— 2·4
December	52·3	22·0	44·8	35·3	40·0	— 0·3
	Max.	Min.	Mean	Mean	Mean	
	79·9	17·5	54·4	41·5	48·0	— 1·1

TABLE XLIX.

SOLAR AND TERRESTRIAL RADIATION, UNDERGROUND TEMPERATURE, AND SUNSHINE.

1909.	Temperature				Bright Sunshine.
	Solar Maximum (Mean)	Grass Minimum (Mean)	Underground (Mean)		
			1ft.	4ft.	
	° F.	° F.	° F.	° F.	hrs.
January	66·9	29·7	39·5	44·6	61·6
February	77·4	26·9	37·3	41·9	108·8
March	84·5	28·0	38·1	40·4	86·9
April	107·4	33·9	47·0	45·0	197·5
May	120·4	37·1	53·0	49·7	316·7
June	115·6	42·4	56·6	53·4	135·7
July	118·4	49·1	59·3	55·8	183·0
August	122·4	47·3	61·7	58·2	245·2
September	106·0	44·5	55·7	56·5	122·4
October	95·0	39·9	53·0	55·0	104·3
November	73·7	30·7	42·5	48·8	100·6
December	64·2	30·7	39·8	44·5	66·9
	Mean	Mean	Mean	Mean	Total
	96·0	36·7	48·6	49·5	1729·6

Chart G.

SHOWING RAINFALL, MEAN BAROMETRIC PRESSURE, AND MEAN TEMPERATURE, RECORDED AT THE METEOROLOGICAL STATION, PENYLAN, CARDIFF, IN EACH WEEK DURING THE YEAR 1909.

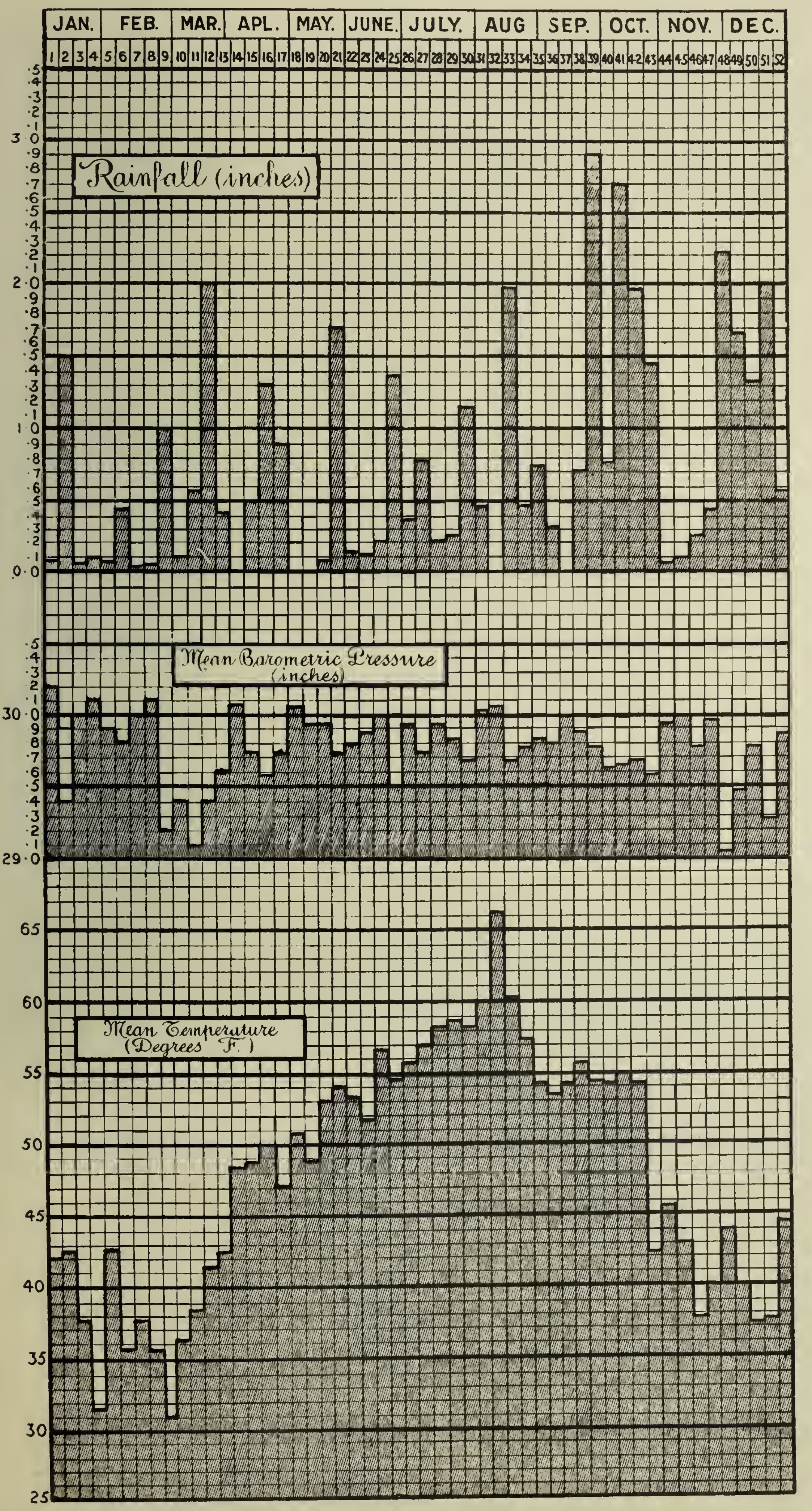


TABLE L.

RAINFALL.

1909	Amount.	Difference from Average (20 years)	*Greatest Fall in 24 hours	*Date of Greatest Fall	*No. of days with Rain (0·01 in. or more)
	ins.	ins.	ins.		
January	1·82	— 1·70	0·63	15th	16
February	0·57	— 2·08	0·39	9th	8
March	4·14	+ 1·27	0·97	24th	25
April	2·74	+ 0·03	0·45	19th & 22nd	14
May	1·80	— 0·53	0·79	26th	10
June	2·08	— 0·56	0·39	21st	18
July	2·55	— 0·03	0·66	27th	23
August	3·27	— 0·90	1·08	17th	13
September	3·83	+ 1·02	1·97	28th	14
October	7·34	+ 2·61	1·05	23rd	27
November	1·63	— 1·72	0·41	27th	13
December	6·93	+ 2·66	1·33	21st	26
	Total 38·70	+0·07	1·97	28th Sept	Total 207

* 24 hours ending 9 a.m. next day.

CARDIFF AND COUNTY PUBLIC HEALTH LABORATORY.

The Laboratory forms part of the buildings of the University College, Cardiff, and is used for teaching purposes in connection with the Public Health and Bacteriological Departments of the College. It is maintained jointly by the Glamorgan County Council and the Corporation of the City of Cardiff, and the Medical Officers of Health of these authorities act as Directors of the Laboratory, having the use of it for any bacteriological or chemical investigations connected with their administrative work. The Laboratory is under the immediate supervision of the Bacteriologist, H. A. Schölberg, M.B. (Lond.), D.P.H. (Camb.), and J. H. Sugden, M.Sc., F.I.C., acts as Chemist and Assistant Bacteriologist.

The following statement shows the work carried out in the Laboratory during the year 1909 :—

SAMPLES RECEIVED AND EXAMINED :—

Specimens, 1055. Waters, 349. Sewages, &c., 145.

The figures for the year 1908 were :—

Specimens, 1487. Waters, 396. Sewages, &c., 156.

BACTERIOLOGICAL EXAMINATIONS—

Suspected Diphtheria	320	
Suspected Typhoid Fever (Serum Diagnosis)	185	
Sputum for Tubercle Bacilli	250	
Diseased Meat	21	
Anthrax	11	
Cockles	1	
Pus Examinations	48	
Milk Examinations	40	
Ringworm	10	
Other Examinations	20	
	—	906

CHEMICAL EXAMINATIONS :—

Urinalyses	76	
Milk and other foods	69	
Condensed Milk	2	
Boiler Sediments	2	
	—	149

DRINKING WATERS :—

Bacteriological Examinations	202	
Chemical Analyses	147	
	—	349

SEWAGES AND EFFLUENTS :—

Sewage and Sewage Effluents (Chemical Examinations)	81	
Trade Effluents (Chemical Examinations)	64	
	—	145
Total		1,549

The total number of specimens, waters, etc., examined during 1909, numbered 1,549, as compared with 2,039 in the year 1908.

I have the honour to be,

My Lord Mayor and Gentlemen,

Your obedient Servant,

EDWARD WALFORD,

Medical Officer of Health.

APPENDIX.

CITY OF CARDIFF.

LOCAL GOVERNMENT BOARD TABLE. TABLE I.

VITAL STATISTICS OF WHOLE DISTRICT DURING 1909 AND PREVIOUS YEARS.

Year.	Population estimated to Middle of each Year.	Births.		Total Deaths Registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Nett Deaths at all Ages belonging to the District.	
				Under 1 Year of Age.		At all Ages.						
		Number.	Rate.*	Number.	Rate per 1,000 Births registered.	Number.	Rate*				Number.	Rate*
1	2	3	4	5	6	7	8	9	10	11	12	13
1899	157,414	5,309	33·7	976	184	2,951	18·7	321	93	...	2,858	18·1
1900	161,452	5,198	35·2	730	141	2,745	17·0	314	78	...	2,667	16·5
1901	165,308	5,206	31·4	775	148	2,671	16·1	352	75	57	2,653	16·0
1902	168,909	5,278	31·2	769	145	2,909	17·2	186	88	44	2,865	16·9
1903	172,598	5,250	30·4	645	122	2,503	14·5	487	96	89	2,496	14·4
1904	176,313	5,208	29·5	751	144	2,704	15·3	458	96	87	2,695	15·2
1905	180,054	5,140	28·5	607	118	2,485	13·8	442	108	66	2,443	13·5
1906	183,823	5,001	27·2	675	134	2,689	14·6	531	135	64	2,618	14·2
1907	187,620	4,865	25·9	639	131	2,923	15·6	614	141	37	2,819	15·0
1908	191,446	5,172	27·0	644	124	2,610	13·6	522	136	64	2,538	13·2
Averages for years 1899–1908	174,493	5,162	29·5	721	139	2,719	15·5	452	104	...	2,665	15·2
1909	195,303	5,026	25·7	518	103	2,619	13·4	611	156	86	2,549	13·0

* Rates in Columns 4, 8, and 13 are calculated per 1,000 of estimated population.

LOCAL GOVERNMENT BOARD TABLE—TABLE II.

VITAL STATISTICS OF SEPARATE LOCALITIES IN 1909 AND PREVIOUS YEARS.

NAMES OF LOCALITIES.	CITY OF CARDIFF. (Whole District).				EAST CARDIFF. Registration Sub-District.				CENTRAL CARDIFF. Registration Sub-District.				WEST CARDIFF. Registration Sub-District.			
YEAR.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages	Deaths under one year.
1899	157,414	5,309	2,858	976	49,040	1,750	753	307	54,300	1,617	1,009	308	53,861	1,942	1,096	361
1900	161,452	5,198	2,667	730	51,035	1,658	755	214	54,358	1,510	907	229	55,874	2,030	1,005	287
1901	165,308	5,206	2,653	775	53,111	1,667	668	226	54,402	1,572	912	255	57,962	1,967	1,073	294
1902	168,909	5,278	2,865	769	56,613	1,694	733	241	54,541	1,624	1,010	230	60,476	1,960	1,122	29[illegible]
1903	172,598	5,250	2,496	645	57,013	1,643	633	194	54,299	1,561	853	206	61,339	2,046	1,010	245
1904	176,313	5,208	2,695	751	57,930	1,626	719	224	55,219	1,575	884	218	61,421	2,007	1,092	309
1905	180,054	5,140	2,443	607	58,445	1,634	636	175	55,343	1,536	843	187	61,351	1,970	964	245
1906	183,823	5,001	2,618	675	59,009	1,554	680	188	55,424	1,541	920	216	62,419	1,906	1,018	271
1907	187,620	4,865	2,819	639	59,832	1,529	702	179	55,674	1,475	966	207	62,384	1,861	1,151	253
1908	191,446	5,172	2,538	644	60,766	1,569	659	180	56,196	1,555	825	181	62,431	2,048	1,054	283
Averages of years 1899 to 1908	174,493	5,162	2,665	721	56,279	1,632	693	212	54,975	1,556	912	223	60,049	1 973	1,058	284
1909	195,303	5,026	2,549	518	61,097	1,573	621	139	55,575	1,513	806	171	63,597	1,940	1,122	208

LOCAL GOVERNMENT BOARD TABLE.

TABLE III.

CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1909.

NOTIFIABLE DISEASE.	Cases Notified in Whole District.							Total Cases Notified in each Locality.			No. of Cases Removed to Hospital from each Locality.			
	At all Ages.	At Ages—Years.												
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.	East Cardiff Regis. Sub-Dist.	Central Cardiff Regis. Sub-Dist.	West Cardiff Regis. Sub-Dist.	East Cardiff Regis. Sub-Dist.	Central Cardiff Regis. Sub-Dist.	West Cardiff Regis. Sub-Dist.	Total Cases removed to Hospital.
Small-pox	2	...	. .	...	1	1	...	...	1	1	...	1	1	2
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria (including Membranous Croup)...	283	7	81	126	31	38	.	106	76	101	71	52	53	176
Erysipelas	132	5	4	7	10	98	8	39	50	43	...	...	...	...
Scarlet Fever	616	8	193	353	37	25	...	224	151	241	183	119	189	491
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	46	...		10	15	21	...	13	11	22	8	10	18	36
Relapsing Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued Fever	2	...	...	1	...	1	...	1	...	1	...	...	...	...
Puerperal Fever	6	...	...	...		6	...	3	2	1	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phthisis, under the Regulations . .	202			5	29	157	11	49	86	67		.	. .	.
Phthisis, Voluntary . .	171		2	40	37	89	3	57	56	58		.	. .	
Totals	1,460	20	280	512	160	436	22	492	433	535	262	182	261	705

LOCAL GOVERNMENT BOARD TABLE.

TABLE IV.

CAUSES OF, AND AGES AT, DEATH DURING THE YEAR 1909.

CAUSES OF DEATH.	Deaths in or belonging to whole District at subjoined Ages.							Deaths in or belonging to Localities (at all Ages).			Total Deaths in Public Institutions in the District.
	All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	East Cardiff Reg. Sub.-Dis	Central Cardiff Reg. Sub.-Dis	West Cardiff Reg. Sub.-Dis	
Small-pox.	1	...	...	...	...	1	...	...	...	1	1
Measles	21	7	13	1	...	...		2	2	17	10
Scarlet Fever	7	...	5	1	1	...		1	1	5	4
Whooping Cough	51	30	21	...	...	...		19	15	17	...
Diphtheria (including Membranous Croup)	14	1	9	4	...			4	...	10	5
Croup ...	1	1	...	...	...	...	...	...	1	...	...
Typhus	...	...	...	...	...	...		...	...	...	...
Fever Enteric	7	...	...	2	2	3	...	1	1	5	3
Other continued	...	...	...	...	...	...		...	...	...	...
Epidemic Influenza	29	3	1	...	2	19	4	14	9	6	2
Cholera	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...		...	...	...	...	...	...
Diarrhœa	69	52	9	...	...	7	1	12	24	33	3
Enteritis	38	25	3	1	1	4	4	15	15	8	...
Gastritis	26	13	6	...	1	4	2	9	9	8	1
Puerperal Fever	2	...	...	...	1	1	...	1	...	1	2
Erysipelas	5	1	...	...	...	3	1	3	1	1	...
Phthisis (Pulmonary Tuberculosis)	234	...	2	9	48	167	8	54	57	123	72
Other Tuberculous Diseases	74	22	19	16	6	11	...	15	27	32	30
Cancer, Malignant Disease	158	...	...	2	3	109	44	38	48	72	55
Bronchitis	188	33	13	1	1	51	89	54	38	96	41
Pneumonia	225	42	46	8	7	104	18	64	60	101	48
Pleurisy	4	...	...	...	...	1	3	...	1	3	1
Other Diseases of Respiratory Organs	21	1	7	...	...	6	7	5	8	8	3
Alcoholism Cirrhosis of Liver	24	...	...	...	...	20	4	7	7	10	4
Venereal Diseases	9	6	...	...	...	1	2	1	4	4	3
Premature birth	89	89	...	...	...	...	...	27	27	35	2
Diseases and Accidents of Parturition	11	...	...	...	2	9	...	...	4	7	2
Heart Diseases	389	9	3	6	17	195	159	94	116	179	99
Accidents	100	4	16	5	15	53	7	12	65	23	65
Suicides	4	...	...	...	...	4	...	3	1	...	...
Poisoning	2	...	...	2	...	...	...	...	...	2	...
Suffocation	1	1	...	...	...	...	...	1	...	...	...
All other causes	745	178	29	34	28	241	235	165	265	315	152
All Causes ...	2,549	518	202	92	135	1014	588	621	806	1122	611

LOCAL GOVERNMENT BOARD TABLE. TABLE V

INFANTILE MORTALITY DURING THE YEAR 1909.

DEATHS FROM STATED CAUSES IN WEEKS AND MONTHS UNDER ONE YEAR OF AGE.

	CAUSE OF DEATH.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under One Year.
All Causes.	Certified	121	20	21	23	185	51	47	37	36	22	36	21	21	19	19	23	517
	Uncertified	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
i. Common Infectious Diseases.	Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	...	...	...	...	...	...	...			1	...		...	3	1	2	7
	Scarlet Fever	...	...	...	...	...	...	...			...	...	...	...	...	...	...	...
	Diphtheria, including Membranous Croup	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
	Whooping Cough	...	...	...	...	...	...	3	3	3	2	3	3	2	4	3	4	30
ii. Diarrhœal Diseases.	Diarrhœa, all forms ...	...	...	2	1	3	4	6	5	8	2	9	3	4	2	4	2	52
	Enteritis, Muco-enteritis, Gastro-enteritis	2	...	...	1	3	5	2	2	...	3	...	1	4	2	1	2	25
	Gastritis, Gastro-intestinal Catarrh	...	...	1	...	1	...	5	2	...	1	1	1	...	1	...	3	15
iii. Wasting Diseases	Premature Birth	65	8	5	3	81	5	1	1	...	1	...	...	...	...	...	...	89
	Congenital Defects ...	17	4	...	1	22	1	1	...	2	...	...	...	...	...	...	...	26
	Injury at Birth	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Want of Breast-milk, Starvation	...	1	...	1	2	2	2	...	1	...	1	...	...	...	...	...	8
	Atrophy, Debility, Marasmus	14	3	7	7	31	12	6	3	1	1	3	1	2	...	...	1	61
iv. Tuberculous Diseases.	Tuberculous Meningitis ...	...	...	...	...	...	1	1	...	1	1	2	2	...	...	...	...	8
	Tuberculous Peritonitis Tabes Mesenterica	...	...	...	...	...	1	1	...	2	...	2	...	1	1	3	...	11
	Other Tuberculous Diseases	...	...	...	...	...	...	1	...	...	...	1	...	...	1	...	...	3
v. Other Causes.	Erysipelas	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
	Syphilis	...	...	...	...	...	3	...	1	...	1	...	...	1	...	...	...	6
	Rickets	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	2
	Meningitis (*not Tuberculous*)	...	...	...	1	1	2	...	...	...	2	2	1	...	...	...	...	8
	Convulsions	17	3	3	6	29	3	7	5	5	1	1	1	1	1	1	...	55
	Bronchitis	1	...	...	...	1	4	4	4	5	4	3	3	2	...	...	3	33
	Laryngitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
	Pneumonia	...	...	...	...	...	1	3	10	3	2	6	3	3	2	5	4	42
	Suffocation, overlying ...	2	...	1	...	3	1	...	...	...	...	...	...	...	...	...	...	4
	Other causes	4	1	2	2	9	5	4	1	5	...	1	2	1	1	...	1	30
	Totals	122	20	21	23	186	51	47	37	36	22	36	21	21	19	19	23	518

CITY OF CARDIFF.

ESTIMATED POPULATION

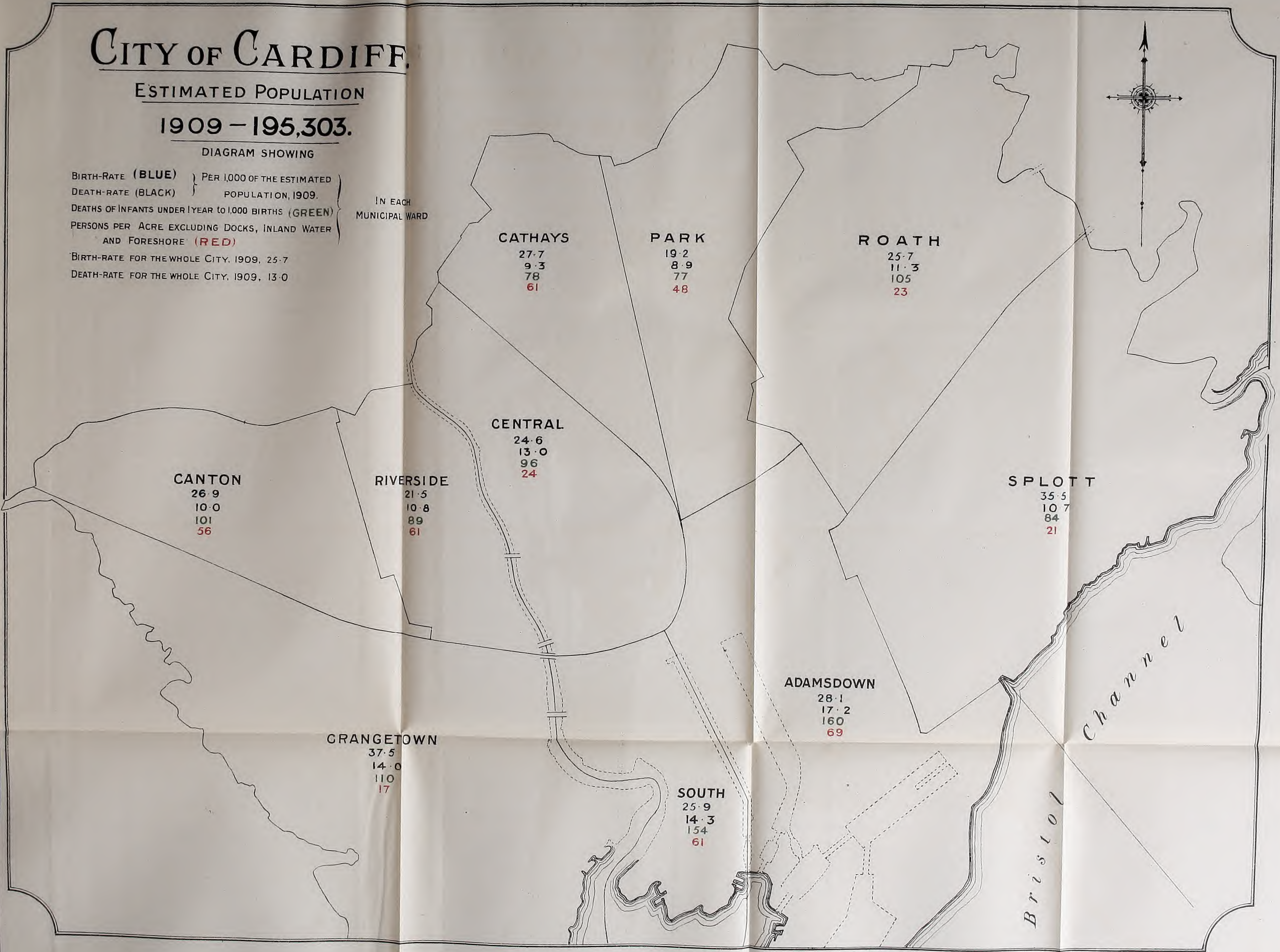
1909 – 195,303.

DIAGRAM SHOWING

Birth-Rate (BLUE) } Per 1,000 of the estimated population, 1909. } In each Municipal Ward
Death-rate (BLACK)
Deaths of Infants under 1 year to 1,000 births (GREEN)
Persons per Acre excluding Docks, Inland Water and Foreshore (RED)

Birth-rate for the whole City, 1909, 25·7

Death-rate for the whole City, 1909, 13·0



DEATHS FROM SPECIFIED CAUSES AT ALL AGES, AND AT SIX GROUPS OF AGES, IN CARDIFF DURING THE YEAR, 1909.

CAUSES OF DEATH.	0 to 1		1 to 5		5 to 15		15 to 25		25 to 65		65 and upwards.		ALL AGES.			Rate per 1,000 persons living.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.	
Small-Pox	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	0·00
Measles	3	4	9	4	1	...	...	...	...	...	...	...	13	8	21	0·10
Scarlet Fever	...	...	2	3	...	1	1	...	...	...	...	...	3	4	7	0·03
Epidemic Influenza	2	1	1	1	...	...	2	...	10	9	1	2	16	13	29	0·14
Whooping Cough	15	15	11	10	...	...	...	...	...	...	...	...	26	25	51	0·26
Diphtheria, Membranous-Croup	1	...	6	3	1	3	...	...	...	...	...	...	8	6	14	0·07
Enteric Fever	...	...	...	...	...	2	...	2	2	1	...	...	2	5	7	0·03
Diarrhœa, Dysentery	21	14	2	5	...	...	...	...	3	4	...	1	26	24	50	0·25
Epidemic or Zymotic Enteritis	11	6	2	...	...	...	...	...	...	...	...	...	13	6	19	0·09
Syphilis	3	3	...	...	...	...	...	...	...	...	...	...	3	3	6	0·03
Gonorrhœa	...	...	...	...	...	...	...	...	1	...	2	...	3	...	3	0·01
Erysipelas	1	...	...	...	...	...	...	...	1	2	1	...	3	2	5	0·02
Pyæmia, Septicæmia	1	...	...	...	1	...	...	2	...	1	...	...	2	3	5	0·02
Septic, Ulcerative or Infective Endocarditis	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	0·00
Other Allied Diseases	1	...	...	...	...	...	...	...	...	...	1	...	2	...	2	0·01
Rheumatic Fever	...	...	...	...	2	1	2	...	3	2	...	...	7	3	10	0·05
Rheumatism of the Heart	...	...	...	...	1	1	...	...	...	...	...	...	1	1	2	0·01
Tuberculosis of Brain or Meninges, Acute Hydrocephalus	5	3	4	4	6	4	...	...	1	...	...	...	16	11	27	0·13
Tuberculosis of Larynx	...	...	...	...	...	...	...	...	1	1	...	...	1	1	2	0·01
Tuberculosis of Lungs, Phthisis, Phthisis Pulmonalis	...	...	...	2	3	6	27	21	107	60	4	4	141	93	234	1·19
Tuberculosis of Intestines, Tabes Mesenterica	6	5	3	4	2	...	1	...	1	...	...	...	13	9	22	0·11
General Tuberculosis, Tubercular Disease of undefined position	2	1	...	2	...	2	2	1	1	4	...	...	5	10	15	0·07
Other forms of Tuberculosis, Scrofula	...	...	1	1	1	1	1	1	...	2	...	...	3	5	8	0·04
Thrush	1	...	...	...	...	...	...	...	...	...	...	...	1	...	1	0·00
Acute Alcoholism, Delirium Tremens	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	0·00
Chronic Alcoholism	...	...	...	...	...	...	...	...	2	1	1	...	3	1	4	0·02
Other Chronic Poisonings	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	0·00
Osteo-arthritis, Rheumatoid Arthritis	...	...	...	...	1	...	1	...	4	4	1	...	7	4	11	0·05
Gout	...	...	...	...	...	...	...	...	1	...	4	...	5	...	5	0·02
Cancer	...	...	...	...	...	2	...	1	33	78	23	21	56	102	158	0·80
Diabetes Mellitus	...	...	...	...	...	...	1	...	6	2	1	2	8	4	12	0·06
Anæmia, Leucocythæmia	...	...	...	...	...	...	...	1	3	1	1	1	4	3	7	0·03
Premature Birth	43	46	...	...	...	...	...	...	...	...	...	...	43	46	89	0·45
Debility at Birth	33	14	...	1	...	...	...	...	...	...	...	...	33	15	48	0·24
Atelectasis	2	5	...	...	...	...	...	...	...	...	...	...	2	5	7	0·03
Congenital Defects	16	3	...	...	...	...	...	...	...	1	...	...	16	4	20	0·10
Want of Breast Milk	3	5	...	...	...	...	...	...	...	...	...	...	3	5	8	0·04
Atrophy, Debility, Marasmus	8	9	1	...	...	1	...	...	1	...	...	...	10	10	20	0·10
Dentition	...	...	3	1	...	...	...	...	...	...	...	...	3	1	4	0·02
Rickets	2	...	...	1	...	...	...	...	...	...	...	...	2	1	3	0·01
Old Age, Senile Decay	...	...	...	...	...	...	...	...	...	1	51	86	51	87	138	0·70
Convulsions	27	27	8	4	1	...	...	...	2	...	...	...	38	31	69	0·34
Meningitis	7	1	3	3	3	3	1	1	2	2	...	...	16	10	26	0·13
Apoplexy	...	...	...	...	...	...	...	...	8	13	5	7	13	20	33	0·16
Softening of Brain	...	...	...	...	...	...	...	...	1	1	3	4	4	5	9	0·04
Hemiplegia, Brain Paralysis	...	...	...	...	...	...	...	1	5	5	2	7	7	13	20	0·10
General Paralysis of Insane																
Other forms of Insanity	...	...	...	...	...	...	...	...	10	5	6	5	16	10	26	0·13
Cerebral Tumour	...	...	...	...	1	...	...	...	2	2	...	...	3	2	5	0·02
Epilepsy	...	...	...	...	...	...	1	3	3	5	...	1	4	9	13	0·06
Locomotor Ataxy	...	...	...	...	...	...	...	...	5	...	1	...	6	...	6	0·03
Paraplegia, Diseases of Spinal Cord	...	1	...	...	...	2	1	1	5	9	3	1	9	14	23	0·11
Other and ill-defined Diseases of Brain or Nervous System	...	...	...	1	...	...	2	...	3	4	2	...	7	5	12	0·06
Otitis, Otorrhœa	...	...	...	1	...	...	1	...	...	...	...	...	1	1	2	0·01
Pericarditis	...	...	...	...	...	1	...	...	1	...	1	...	2	1	3	0·01
Endocarditis, Valvular Diseases of the Heart	...	1	1	...	...	2	4	4	22	18	7	17	34	42	76	0·38
Angina Pectoris	...	...	...	...	...	...	...	...	4	2	1	1	5	3	8	0·04
Aneurism	...	...	...	...	...	...	...	...	4	...	...	...	4	...	4	0·02
Senile Gangrene	...	...	...	...	...	...	...	...	...	...	...	3	...	3	3	0·01
Embolism, Thrombosis	...	...	...	...	...	...	1	...	...	9	1	1	2	10	12	0·06
Other and ill-defined Diseases of Heart and Circulatory System	5	3	1	1	2	1	4	4	74	61	73	57	159	127	286	1·46
Laryngitis	...	1	3	2	...	...	...	...	...	...	...	...	3	3	6	0·03
Croup	1	...	...	1	...	...	...	...	...	...	...	...	1	1	2	0·01
Acute Bronchitis	19	14	7	6	...	1	...	...	2	2	4	5	32	28	60	0·30
Chronic Bronchitis	...	...	...	...	...	...	...	1	27	20	49	31	76	52	128	0·65
Lobar, Croupous, Acute Pleuro-Pneumonia	...	1	3	...	1	1	3	1	20	10	1	...	28	13	41	0·20
Lobular, Catarrhal, Broncho-Pneumonia	18	13	15	9	1	1	...	...	4	4	2	...	40	27	67	0·33
Pneumonia, form not stated	3	8	12	7	1	3	1	1	47	20	9	6	73	45	118	0·60
Emphysema, Asthma	...	...	...	1	...	...	...	...	4	1	4	3	8	5	13	0·06
Pleurisy	...	...	...	...	...	...	...	...	...	1	2	1	2	2	4	0·02
Other and ill-defined Diseases of Respiratory System	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	0·00
Diseases of Pharynx	...	...	...	...	...	...	...	...	...	2	...	...	...	2	2	0·01
Diseases of Œsophagus	...	...	...	...	...	...	...	...	...	1	...	1	...	2	2	0·01
Ulcer of Stomach and Duodenum	...	1	...	...	...	...	1	2	6	3	...	...	7	6	13	0·06
Other Diseases of Stomach	5	9	3	1	...	...	...	1	4	3	2	2	14	16	30	0·15
Enteritis	13	12	1	2	1	...	1	...	...	4	1	3	17	21	38	0·19
Appendicitis	...	...	...	...	3	...	...	1	4	1	...	...	7	2	9	0·04
Obstruction of Intestine	...	...	...	...	...	...	1	...	4	8	1	3	6	11	17	0·08
Other Diseases of Intestine	1	...	...	...	...	...	...	...	...	...	1	...	2	...	2	0·01
Cirrhosis of Liver	...	...	...	...	...	...	...	...	9	7	2	1	11	8	19	0·09
Other Diseases of Liver	1	...	...	...	2	...	...	...	4	4	2	2	9	6	15	0·07
Peritonitis	...	...	...	...	2	2	1	...	2	4	...	...	5	6	11	0·05
Other and ill-defined Diseases of Digestive System	...	...	1	...	...	...	1	...	1	2	1	...	4	2	6	0·03
Diseases of Lymphatic System and Ductless Glands	...	...	...	...	...	...	...	1	...	1	...	1	...	3	3	0·01
Acute Nephritis	1	1	2	...	2	1	1	...	11	5	1	2	18	9	27	0·13
Bright's Disease	...	...	...	...	2	...	1	2	15	7	10	5	28	14	42	0·21
Diseases of Bladder and Prostate	...	...	...	...	...	...	...	2	1	7	1	...	2	9	11	0·05
Other and ill-defined Diseases of Urinary System	...	...	...	...	...	...	...	...	6	3	2	...	8	3	11	0·05
Diseases of Ovaries	...	...	...	...	...	...	...	...	...	2	...	...	...	2	2	0·01
Diseases of Uterus and Appendages	...	...	...	...	...	...	...	...	...	4	...	1	...	5	5	0·02
Abortion, Miscarriage	...	...	...	...	...	...	...	...	...	2	...	...	...	2	2	0·01
Puerperal Convulsions	...	...	...	...	...	...	...	1	...	1	...	...	...	2	2	0·01
Placenta Prævia, Flooding, Accidental Hæmorrhage	...	...	...	...	...	...	...	...	...	2	...	...	...	2	2	0·01
Other & ill-defined Accidents & Diseases of Pregnancy & Childbirth	...	...	...	...	...	...	...	1	...	4	...	...	...	5	5	0·02
Arthritis, Ostitis, Periostitis	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1	0·00
Other and ill-defined Diseases of Osseous System	...	...	...	...	...	1	...	...	...	...	1	...	1	1	2	0·01
Ulcer, Bedsore	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	0·00
Pemphigus	...	2	...	...	...	...	...	...	...	...	...	...	...	2	2	0·01
Other and ill-defined Diseases of Integumentary System	1	...	...	...	...	...	...	...	...	...	...	...	1	...	1	0·00
By Accident or Negligence	3	2	5	11	6	2	10	4	43	10	4	3	71	32	103	0·52
Suicides, all Forms	...	...	...	...	...	...	...	...	3	1	...	...	3	1	4	0·02
Other ill-defined and not Specified Causes	...	1	...	...	...	...	...	...	2	1	...	1	2	3	5	0·02
ALL CAUSES	285	233	110	92	47	45	74	61	555	459	296	292	1367	1182	2549	13·0

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